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**FACULTÉ DES ÉTUDES SUPÉRIEURES
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**FACULTY OF GRADUATE AND
POSTDOCTORAL STUDIES**

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GRADE / DEGREE

School of Music

FACULTÉ, ÉCOLE, DÉPARTEMENT / FACULTY, SCHOOL, DEPARTMENT

**Harmony and Voice Leading in Jazz Improvisation: Formulating an Analytical Framework For a
Comparative Analysis of a Bill Evans and Herbie Hancock Performance of Hancock's *Dolphin Dance***

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Harmony and Voice Leading in Jazz
Improvisation: Formulating an Analytical
Framework For a Comparative Analysis of a
Bill Evans and Herbie Hancock
Performance of Hancock's *Dolphin Dance*

Tony Dunn

Thesis submitted to the
Faculty of Graduate and Postdoctoral Studies
In partial fulfillment of the requirements
For the MA in Music Theory

School of Music
Faculty of Arts
University of Ottawa

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Your file Votre référence
ISBN: 978-0-494-69023-9
Our file Notre référence
ISBN: 978-0-494-69023-9

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Abstract

Through the development of an analytical framework that addresses voice leading in both tonal and modal settings, improvised performances based on a repeating jazz lead sheet progression can be analyzed, categorized, and compared according to their implied harmonic content and adherence to the harmonic possibilities inherent in the lead sheet.

The proposed framework, grounded in jazz theory, is used to analyze two performances of Herbie Hancock's *Dolphin Dance*, one each by Bill Evans and the composer. Five passages, representing both tonal and modal settings, are examined according to the voice leading criteria proposed in the framework.

This thesis addresses 1) the various jazz scores necessary for analysis – including a third abstract score that encapsulates the infinite possible ways to realize a lead sheet; 2) the evolution of modal jazz; and 3) the reduction of transcribed improvisations to progressions of implied harmonic sonorities connected through voice leading.

Introduction

Analyzing improvised music opens up a conundrum of considerations for the music analyst. In jazz, much like many forms of popular music and world music, performances flow out of loosely organized scores with the majority of the musical decisions – including but not limited to choices in tempo, rhythmic interpretation, harmonic choices, and form – left to the discretion of the performer(s). Above any pre-thought out considerations towards a given performance, jazz musicians are well practiced in making real-time decisions during their performances. These real-time decisions – either made consciously or subconsciously – are influenced by the audience, the other musicians, and through personal inspiration. The total sum of musical choices ultimately shapes every single performance into a distinct musical entity. In essence, every musical performance of the same piece, even with the same musicians and in front of the same audience, is unique. For the analyst this means that specific consideration must be given to each performance. Furthermore, there is no one analytical perspective that will fully account for what goes on musically during any one improvised performance. That being said, there is no futility in trying to uncover part of the musical mystery – i.e. “what is going on” in each distinct aural occurrence – through a keen analytical eye. Every analytical consideration peels back one layer of the mystery while leaving another one in waiting. This process, known well and dear to the analyst, renders every analytical consideration part of an endless journey rather than a destination, albeit a journey with many stops along the way. It is through this journey that the analyst finds him or herself most comfortable and content – continuously looking back at the layers

uncovered while simultaneously yearning to dive back in and peel back a few more. It is in this spirit that this thesis flows. Much like the improviser who brings a journey through a loosely constrained score, I shall embark on a journey through the nature of harmony and voice leading in jazz improvisation.

These two layers – harmony and voice leading – constitute the bulk of the analytical exposure covered in this thesis. By narrowing the focus to these components, other important aspects such as rhythm interpretation and interaction are, by necessity, swept to the side. These topics wait anxiously in the sidelines for later discovery. That being said, the richness of analytical discovery in the quality of harmony and voice leading connection will aptly make for an exciting and stimulating journey all on their own.

Jazz performers inherently suggest harmonic sonorities in their playing, much like the visual artist who continually projects various shadings of colour. These implied harmonic regions naturally connect through aurally perceivable threads as time flows unabstractionedly to the next region. Like the connecting of colours blended together by the painter's brush stroke, the jazz musician weaves together voice-leading threads that tie implied harmonic regions together.

For this thesis' journey, an analytical framework that considers these connections will be derived and applied. The proposed framework stems out of a collective influence from jazz scholarship and jazz theory texts. Jazz scholars focus on harmony and voice leading through many lenses – i.e. functional harmony and chord voicings¹,

¹ Martin (1980), Martin (1988), Haywood (1991), Strunk (1996), Rinzler (1999), Waters (2005), Perry (2006).

reharmonization / recomposition / superimposition², thematic/formulaic improvisation³, relationship between melody and improvisation⁴, Schenkerian analysis⁵, phrase structures⁶, and pitch-class transformations⁷. In all of these writings the scholars explore some kind of relationship between the jazz lead sheet and the resulting improvisation – usually involving making some kind of explicit or implicit link between the two. They employ various reductive techniques to expose these links. Consider the following:

1) Harmonic and motivic components in improvisation. Perry, in his dissertation *A Comparative Analysis of Selected Piano Solos by Red Garland, Bill Evans, Wynton Kelly and Herbie Hancock From Their Recordings With the Miles Davis Groups, 1955-1968*, analyzes the implied harmony and motivic development of select piano solo passages. In the chapter on Herbie Hancock, Perry highlights some of Hancock's improvising techniques including motivic development based in intervallic portions of the melody and extending harmonic progressions through sequences and contrary motion. These improvisations are subsequently linked back to the lead sheet harmony. In his article *Sonny Rollins, The Challenge of Thematic Improvisation*, Schuller focuses on the reducibility of many of Rollins' improvisations into two or three simple ideas that Rollins thematically explores. These reductions inherently link the improvised variations with select passages from the lead sheet. Kenny continues in line with Perry and Schuller, but with a more formulaic approach in his article *Structure in jazz improvisation: a formulaic analysis of the improvisations of Bill Evans*. Kenny codifies a number of Evans' musical

² Martin (1997-1998), Morgon (2000-2001), Waters (2001-2002), Reeves (2002).

³ Schuller (1986), Martin (1996), Kenny (1999).

⁴ Larson (1993), Larson (1996), Martin (1996), Strunk (1999).

⁵ Larson (1987), Larson (1998).

⁶ Martin, (1980), Martin (1988), Terefenko (2008).

⁷ Block (1990).

tools according to intervallic component, melodic direction, and placement and usage over specific harmonies. By reducing the improvised passages to small phrases, Kenny is able to highlight the strong relationship between individual patterns and chord function, which inherently highlights their local level voice leading.

2) Embedded forms of the melody and lead sheet harmony in improvised lines. In *Charlie Parker and Thematic Improvisation* Martin examines multiple improvisations by Parker. Through a modified Schenkerian analytical approach Martin shows how Parker's improvisations are rich in developed motivic figures found in the original melody. Larson makes similar parallels between melody and improvisation, also through a Schenkerian orientation, in his dissertation *Schenkerian Analysis of Modern Jazz*. He analyzes three different piano improvisations on Thelonious Monk's '*Round Midnight*': one each by Monk, Oscar Peterson, and Bill Evans. Larson exposes how the pianists manipulate sectional boundaries by embedding "linking motives" and "closing motives" based on lead sheet melody and harmony into their realizations.

3) Phrase structures and harmonic patterns. Martin, in his article *Jazz Harmony*, reduces phrases to progressions based in cycles of fifths or seconds. By doing this Martin demonstrates how the phrase structure can be gauged according to the number of successive steps it covers in the cycle. Martin also reiterates the prevalence of the 4-measure phrase in jazz repertory. He systematically reduces larger scale 32-measure phrases to successive 4-measure groupings of prolonged harmony. Strunk does a similar exposure in his article *Linear Intervallic Patterns In Jazz Repertory*. Here Strunk analyzes various types of sequences found in jazz repertory and reduces them through Schenkerian tools to singular prolongations of harmony.

Another type of phrase analysis involves tracking the vertical and horizontal manipulation of phrases. In his article *Superimposition in the music of Herbie Hancock*, Morgan examines Hancock's technique of vertically superimposing his improvised phrases – i.e. “side-slipping” a phrase by transposing up or down a semi-tone or transposing a phrase up or down a third. Morgan discusses the impact of the superimposition on the harmony and argues that the manipulation of the phrase itself rather than the pitch content of the actual phrase becomes the central focus of the improvisation. On the other hand, Waters, in his article *Outside Forces: “Autumn Leaves” in the 1960's*, focuses on the horizontal phrase shifting employed by Keith Jarrett and Herbie Hancock. Waters discusses the impact of metric manipulation created through phrase shifting on the implied harmony and relation to the original form.

Analytical approaches borrowed from select non-jazz scholarly writing have also been influential on this thesis. From classical and popular music scholarship, both the foundations of Schenkerian voice leading and Schoenberg's 4-part voice leading structure based on the “law of the shortest way”⁸ have provided a conceptual framework from which to work. Set-theory's analytical tools are also briefly considered⁹.

In terms of Schenkerian voice-leading theory, concepts such as voice hierarchy, voice exchange, linear intervallic patterns, and superposition¹⁰ will not play a specific role in the analysis here. Instead, more from a generalized perspective, the Schenkerian reductive practice of extracting pertinent voices from the foreground level and highlighting their connection to the fundamental harmonic construction will be borrowed.

⁸ Schoenberg (1978).

⁹ The basic analytical tools used in set-theory analysis are covered in many texts such as Joseph Straus' *Introduction to Post-Tonal Theory*.

¹⁰ The basic concepts of Schenkerian analysis are covered in many texts such as Cadwalller and Gagne's *Analysis of Tonal Music: A Schenkerian Approach*.

Since *Dolphin Dance*'s harmonic structure is multi-tonal¹¹, and thus non-congruent with the tonally-based Schenkerian paradigm, it follows that analysis based on a wholly Schenkerian perspective cannot be used. Multi-tonality impacts the Schenkerian modal as follows: by removing an overall tonal perspective, the highlighted prominent voices – i.e. the *Ursatz* – lose their hierarchical status and the other structural pitches while maintaining their connective relationships lose their relative prominence over each other. The approach to voice-leading analysis in this thesis' analytical framework will adhere to a more neutral pitch status, thus focusing more on a horizontal connection rather than a conceptually vertical hierarchical connection.

Popular music theorists, while finding merit in using the Schenkerian paradigm, have also found it necessary to modify some of its basic components. For example, both Burns and Everett (2008 and 2008 respectively) have adopted a Schenkerian based voice leading approach to their musical analysis. Their approach to coexisting modal and tonal structures and tonally contained segments – typically as verse-chorus-bridge units – provide some precedence to applying a theory based more in large-scale voice leading connections to more local levels.

For the analysis in this thesis, *Dolphin Dance*'s structure will be broken down into 4-measure passages – much like the verse-chorus segmentation. Again though, by removing an encompassing key consideration, even for a short 4-measure passage, the hierarchy of pitches becomes irrelevant. Instead, structural pitches will be considered from a harmonic sonority perspective rather than from a key perspective. This perspective aligns more smoothly with Schoenberg's 4-part voice-leading structure based on the "law of the shortest way". This fundamental concept model – also implicitly

¹¹ The tonality of *Dolphin Dance* will be discussed in detail in Part I.

addressed by Martin – becomes useful in highlighting multi-lined voice leading motion by tightly voiced sonorities. The voice-leading diagrams in the proposed analytical framework will adhere to this type of model.

No one perspective from all of these varying sources will directly govern the specific analytical choices and approach used throughout this thesis. Instead, an amalgamation of these perspectives will govern the analytical choices and approach used – consider this amalgamation the “middle ground” of the framework. Central then to the “background” of this framework will be the process of harmonic reduction, thus making the analysis more manageable. Specific to these reductions are the following precepts: phrases will be considered in 4-measure groupings (as per Martin, Kenny, Burns), measure-to-measure improvisations will be reduced to a singular implied harmony (as per Strunk, Larson, and Martin) and the number of voices will be limited to five voices – four upper voices plus the bass – (as per Schoenberg and Martin).

For the analysis, and inaugural “testing” of the proposed analytical framework, the scores of improvised performances of Herbie Hancock’s *Dolphin Dance* by two of jazz’s most influential pianists, Bill Evans and the composer himself, will be presented and analyzed. *Dolphin Dance* was originally recorded in 1965 and appears as the final track on Hancock’s groundbreaking album *Maiden Voyage*¹². During the mid-1960’s, approaches to jazz playing were becoming increasingly experimental. Jumpstarted by

¹² Recorded on Blue Note by the jazz quintet comprised of Freddie Hubbard (trumpet), George Coleman (tenor saxophone), Ron Carter (bass), Tony Williams (drums), and Herbie Hancock (piano).

Miles Davis' 1959 album *Kind of Blue*¹³, the tonal language so prevalent in the bebop era became infused with a more modal-based language. During this highly experimental period, approaches to jazz improvisation moved from the more confined formal structures of swing and bebop typical of the 1940's and 1950's to the increasingly unrestricted structures of free jazz. Between these two extremities arose a post-bop style where musicians such as Miles Davis, Wayne Shorter, Bill Evans, Freddie Hubbard, and Herbie Hancock carved out a stylistic niche for their new sound.¹⁴ The newly conceived sound results from these musicians balancing between freer and stricter approaches to both their jazz composition and improvisation. Hancock's composition and subsequent performance on *Dolphin Dance* accurately captures the nature of this evolution.

To fully analytically unveil the embodiment of this evolution, many parameters both specific to *Dolphin Dance* and specific to jazz analysis in general, need to be established. In Part I of the thesis the nature of the jazz score will be discussed in detail. Three scores, paralleling Noam Chomsky's linguistic model based on coexisting language structures, emerge as central to the analysis of formal structures in jazz music: "Score1", "Score2", and "Score3". As expected, the first two scores refer respectively to the lead sheet and the transcription of the solos, but the concept and inclusion of a third score is rather unanticipated. The reason for considering and including a third score is three-fold. First, Score3 implicitly alludes to the infinite possible realizations of the lead sheet while it explicitly presents a finite array of common realizations. Second, the variations included in Score3 will present an example of the category types derived in the

¹³ Recorded on Columbia Jazz by the jazz sextet comprised of Miles Davis (trumpet) "Cannonball" Adderly (alto Sax), John Coltrane (tenor saxophone), Paul Chambers (bass), James Cobb (drums), and Bill Evans (piano) playing on four of the five tracks with Wynton Kelly playing on the fifth.

¹⁴ Reference to historical context: Bailey (1992), Burns, K. (2000), Gridley (2003), Lyons (1983), Martin (1996), Pond (2005), Schuller (1968), Schuller (1990).

Thesis' Part III. And finally, its inclusion attempts to bridge the conceptual gap between the loosely constrained lead sheet and its improvised realizations. Or more simply put: Score3 attempts to bridge the gap between Score1 and Score2. These three scores will be introduced through examples that explore the formal and harmonic structure of typical jazz standards, and will continue with discussions that delve deeper into the harmonic dichotomy of tonal and modal settings. Part I will conclude by examining the evolved formal and harmonic structure of Hancock's *Dolphin Dance*.

In Part II the journey takes a slight detour through a set of quintessential jazz treatises. In addition to the scholarly writings on jazz harmony and voice leading theory, there is much to be found on these topics in jazz theory texts – i.e. texts on jazz education, jazz voicings, jazz piano, and “how to” improvise¹⁵. Although not scholarly works, the depth of insight into harmonic approaches to improvising jazz piano cannot be neglected. Furthermore, these works are continually referenced in jazz scholarship and should be considered in the same light as classical “treatises” on harmony¹⁶. From these texts, I have created an appendix (Appendix C) that highlights the fundamentals of harmonic voicings, chordal progressions, and their extensions and alterations. Each text is examined according its treatment of both tonal and modal settings in jazz. These tonal and modal fundamentals are then used as the foundation for deriving the analytical framework.

¹⁵ This survey will be limited to four of the most prolific writers on jazz piano education and jazz theory: Jerry Coker (1991), Dan Hearle (1974, 1978), Mark Levine (1989, 1995), and David Baker (1988, 1990). Select texts will be used in this discovery.

¹⁶ For example Jean Philippe Rameau's *Traité de l'harmonie*, Olivier Messiaen's *The Technique of My Musical Language*, Paul Hindemith's *The Craft of Musical Composition*, or Heinrich Schenker's *Harmonielehre*.

In Part III the thesis returns to *Dolphin Dance*. In this section five 4-measure passages representing both tonal and modal settings are extracted. For each passage a few possibilities will be discussed that address the harmonic progression and voice-leading connection implied within each passage. From these possibilities an *initially derived voicing* will be determined followed by three variations – these derivations account for a few of the Score3 possibilities. Next, each change in harmony is tracked in terms of how the voices move – i.e. whether they descend, ascend, or stay the same. These voice-leading properties will be the determinants used in Part IV to categorize the voice-leading types contained within each passage. The sum of the total movement between connecting voices will ultimately be calculated and reduced to a numeric ratio. In essence, the voice-leading reductions determined for each passage become a concrete analytical object that can be used in comparison to *any* improvised performance of the same passage. Finally, at the end of the third section a Score3 is derived for each of the five passages. The variations, which conceivably are infinite, are limited to four possibilities – the originally derived voicing and three variations. These variations demonstrate the full range of categories present in the analytical framework.

In the final section of the thesis, Part IV, an application of the analytical framework is presented. Transcriptions of a Bill Evans and Herbie Hancock improvised performance for each of the five passages will be assessed according to their implied harmony and voice-leading content. These assessments will then be categorized according to the framework's criteria and then compared to the Score3 derivations. The voice-leading quality of each passage will be reduced to a “voice-leading sum” (i.e. in the form of a numeric ratio) that will be used in the comparison of like passages. A

discussion follows the analysis of each passage including commentary on both Evans' and Hancock's approach to tonal and modal passages and their adherence, or lack thereof, to the Score³. The commentaries incorporate the voice-leading types and voice-leading sums evident in their respective improvisations.

The thesis will conclude with reflections on the journey taken. Central to these thoughts will be the process of deriving an analytical framework, its usefulness, and its subsequent limitations. Inherent in these reflections are the process and path that the analyst follows – on the one hand some of the layers of voice-leading connections in Hancock's *Dolphin Dance* are now peeled back, while on the other hand so many other musical layers surrounding *Dolphin Dance* await further discovery.

Part I: The Jazz Score

This discussion will be limited to jazz performances based on a repeating lead sheet progression. Due to the improvisatory nature of a jazz performance, an analyst faces a multitude of possible scores – potential and actual realizations of the chord changes – from which to work. No single score can sufficiently provide meaningful results when analyzed, even when limiting the analytical lens to voice leading and successive harmonic structures; some form of comparative score analysis must ensue. In this section, three scores encapsulating the improvised jazz performance – “Score1”, “Score2”, and “Score3” – will be focused on in detail.

The two types of jazz score most often considered in jazz analysis are the lead sheet (Score1) and the transcription of the jazz performance (Score2). These score types, considered from a linguistic perspective respectively as the *deep structure* and the *surface structure*¹⁷, allude to a number of other possible variant or derived scores. Typically, many versions of both Score1 and Score2 are available. For example, Score1 can vary based on different fakebook publications¹⁸, or based on transcriptions from a number of recordings, while Score2 versions can differ considerably based on the attention to rhythmic and pitch subtleties, or based on the number of derived parts or instruments incorporated into the transcription.

Although Score1 and Score2 can represent many of the score variants, an allusion to a third score that accounts for all the variants exists, albeit abstractedly – the Score3

¹⁷ Refer to Perlman (1981) for a more detailed usage of Chomsky’s borrowed linguistic terminology.

¹⁸ A simplified score consisting of melody, chord progression, and basic form – including any number of possible parts, i.e. introduction, vamp, and outro (“coda”)

shallow structure. In borrowing conceptually from Noam Chomsky's linguistic model, the *shallow structure* accounts for all the possible ways the *deep structure* can be realized, where the *surface structure* represents the actual realization in question. Some forms of Score3 – *shallow structures* will be explored in Part III. Refer to the following table for graphic representation of this conceptual comparison:

Score1	<i>Deep Structure</i>	Lead Sheet
Score2	<i>Surface Structure</i>	Transcribed performance
Score3	<i>Shallow Structure</i>	All possible performances

Table 1 – Score-types considered in terms of Chomsky's linguistic model

Analysis of Score1 and Score2 can be approached as one might a classical score – with a focus on the formal structure, voice leading, motivic cells, or tonality. In jazz score analysis however, the analysis must go further to include some form of comparison of the transcription (Score2) and the lead sheet (Score1). This comparison, while also providing significant insights into the performers improvisatory style, accounts for the fact that the resulting Score2 improvised performance is based on something more concrete: i.e. Score1. This connection, highlighted through comparative analysis, inherently raises the issue of constraints in the score. While both the classical score and Score1 prescribe musical constraints, their respective ranges vary considerably. When performing under the constraints of the classical score, the classical performer is typically limited to musical expression through variances in tempo, phrasing, and articulation. Contrarily, when assessing a performer's style in a jazz improvisation, it becomes necessary for the analyst to go beyond these musical elements. Consider that a jazz performer can break from the prescribed melody, alter the metric and rhythmic structure, create their own

phrasing and articulation, and re-harmonize at their own discretion – thus the ever expanding Score3 possibilities.

The following analytical procedures take into account for these possibilities by addressing some of the Score3 variations that exist between Score1 and Score2: 1) settle on a reference Score1 lead sheet based on available fakebook publications and the original recording; 2) derive a set of Score3's based on Score1 that best represent a harmonic realization in jazz performance; and 3) comparatively analyze Score2 transcribed performances in comparison with the set of Score3 variations. Step 2 provides a means of aligning Score1 and Score2, and furthermore provides a broader set of unchanging analytical references through which to compare *any* transcribed performance.

Ultimately these three analytical procedures will address the stylistic qualities of the performance being analyzed. In essence, the question of *how* the performer interprets and reinterprets Score1 becomes central to issues of style. Both Evans' and Hancock's style will be inherently highlighted through comparative analysis' of their respective Score2 performances to the derived Score3 realizations.

For the first procedure, establishing the definitive *Dolphin Dance* lead sheet, a comparison of four lead sheet sources will be undertaken. Refer to Appendix A1 for the four varying Score1 versions taken from jazz various 'Fakebooks' and transcriptions¹⁹. For each *Dolphin Dance* fakebook score the melody remains consistent in both pitch and rhythm, thus this procedure will be limited to a determination of harmony. The decision-making process involved in determining Score1 will be based on the ordered criteria outlined in the following table:

¹⁹ Refer to the first page of Appendix A1 combines all four versions into one, followed by the four individual fakebook versions.

Label	Description of Criteria
D1	a chord must contain a minimum of four distinct harmonic sonorities – i.e. the chord must be extended beyond a triad
D2	the harmonic extensions implied by the melody must be included
D3	the harmony played during the first half of the original Hancock recording ²⁰ will be considered
D4	commonalities among the different versions will be weighed accordingly
D5	preference towards the most ‘easy to read’ symbol – i.e. an ambiguous or confusing chord symbol will be discounted
D6	an harmony will be added if none of the possibilities adequately convey the implied harmony

Table 2 – List of criteria for Score1 determinations

To illustrate these criteria, several examples of these decisions will be discussed as follows. At first glance, the harmonic choices are fairly consistent among the different versions. Most of the discrepancies involve the harmonic extensions beyond the triadic base. For example, Eb, EbM7, and EbM9 options occur for the Eb major triadic sonority in measure Intro1. The Eb triad is immediately discounted following the D1 criteria. As the melody does not emphasize a chordal ninth, the EbM7 is chosen. In m.6 the melody clearly outlines the #11th [D] of the Ab sonority²¹ (D2) and in the original recording Hancock harmonizes the measure with a major 7th-9th (D3) instead of the dominant 7th sonority suggested by the other versions, thus an AbM9(#11) is chosen. The recording is again referenced for mm. 31-34 where the E pedal is clearly sounded by the bass player (D3). The alternating DM7/E and CM7/E sonorities are chosen according to the commonalities in the remaining choices (D4). Furthermore, Bm7 [B D F# A] and DM7 [D F# A C#] are near equivalent sonorities²². In measures 22, 25, and 26 the readability of the chordal options (D5) influenced the decision process. For example, the B7(no5)/F in m. 22 is a confusing designator to come across when reading through the progression –

²⁰ Based on the recording on the 1965 Maiden Voyage album, the sonic reference is limited to the first chorus (as there are varying harmonic realizations throughout) and based as judiciously as possible on the bass and piano harmonizations during this chorus.

²¹ Refer to any of the fakebook charts in Appendix A1-4 for the *Dolphin Dance* melody.

²² A rootless voicing for Bm9 [D F# A C#] – the most likely voicing to be chosen – shares the exact same notes as a DM7

These criteria are applied successively to Score1 in the following table:

Measure	Harmony Options	Chosen Harmony	Criteria
Intro 1	Eb EbM7 EbM9	EbM7	D1
Intro 2	Bbm Bbm7 Bbm11 DbM7/Eb	Bbm7	D1
Intro 3	Eb EbM7 EbM9	EbM7	D1
Intro 4	Dm7b5 Dm11b5 G7 G7#9	Dm7b5 G7	D4
5	Cm Cm7 Cm11	Cm7	D1
6	Ab7 AbM9(#11) Ab13(no5)	AbM9(#11)	D2 D3
7	Cm Cm7 Cm11	Cm7	D1
8	Am Am7 D7 D7#9	Am11 D7	D1 D2 D4 D6
9	G GM7 GM9	GM7	D1
10	Abm7 Abm11 Db7	Abm7 Db7	D2
11	Fm Fm7 Fm9 Fm11	Fm11	D2
12	Bb7 Bb9/F Fm/Bb	Bb7	D3
13	Cm Cm7 Cm11	Cm7	D1
14	Cm7 Cm7/Bb	Cm7/Bb	D3
15	Am Am7 Am11	Am11	D2
16	D7 D7#9 D13	D7	D4
17	G GM7 GM9	GM7	D1
18	G7sus G13sus Dm/G	G9sus	D2 D6
19	A/G G7#9 FM7/G	A/G	D3
20	G7sus G7b9 GM7#9 EbM7b5/G Cm+7/G	G9sus	D3 D5 D6
21	F7sus F13sus Cm/F	F7sus	D2
22	G/F D/F F13b9 B7(no5)/F	G/F	D2 D5
23	F7sus F13sus Cm/F	F7sus	D3
24	Em Em7 Em9 A7 A13	Em11 A7	D1 D2 D6
25	Eb7 Eb9(#11) F7(no5)/Eb	Eb7#11	D2 D5 D6
26	Am Am7 Am11 D7 D13 B7(no5)/D	Am9 D13	D1 D2 D5 D6
27	Bm Bm7 Bm11	Bm7	D1
28	E7 E7#9 E13 Dm Dm7 Dm11	E7 Dm7	D1 D2
29	C#m C#m7 C#m11	C#m11	D1 D2
30	F#7 F#13 F#13(no5)	F#13	D2
31	Bm7 Bm7/E DM7/E	DM7/E	D3 D4
32	Am7/B Am/E CM7/E	CM7/E	D3 D4
33	Bm7 Bm7/E DM7/E	DM7/E	D3 D4
34	Am7/B Am/E CM7/E	CM7/E	D3 D4
1	Bbm7 Bbm/Eb DbM7/Eb	DbM7/Eb	D3 D4
2	Bb7b9 Bb13(b9)/Eb EbM7b5 B°7/Eb	Bb7b9/Eb	D3 D5 D6
3	Bb7sus(b9) C7(#9)/Eb AbM7#5/Eb Fm9/Eb	Bb7susb9/Eb	D3 D6
4	Dm7b5 G7#9 G7#9#5 G7b9 Fm7b5/Eb	Dm7b5/ G7b9 G	D3 D6

Table 3 – Derived Score1

the symbol says both to omit the 5th [F or F#] and to play it in the bass. Deducing what to play during this measure in a real time situation could be problematic. Given the other possibilities in m. 22 [G/F D/F F13b9], the G/F best accounts for the melodic sequence that occurs from mm.18-20 [Gsus A/G Gsus] to mm.21-23 [Fsus ____ Fsus]. This decision, influenced by the melodic sequence, results from a D2 criteria. Finally, in a few cases the best chordal choice was not made by any of the lead sheet versions: i.e. in m. 8 the melody sits on the 11th of the chord in the first half of the measure (D2) and none of the harmonic options include the 11th sonority, thus an Am11 is added and chosen (D6) even though none of the lead sheets referred to chose this harmony. Appendix A2 encapsulates all of these decisions and will be referred to as the definitive Score1 for the duration of this paper.

1.1. Lead Sheet Structures

Both the formal and the harmonic structure of *Dolphin Dance* are atypical and therefore difficult to classify. The following section examines how typical jazz standards are organized formally and harmonically and then shows how *Dolphin Dance* deviates from these norms. These deviations represent a compositional evolution during a time of experimentation in the mid-1960's.

1.1.1. Formal Structure

The formal structures of jazz standards are typically based on 4-measure melodic phrases²³. For analytical purposes this phrase duration becomes a suitable length for the extraction of select passages. The following properties are inherently linked to the 4-measure jazz phrase: melodic ideas are often presented within a 4-measure span, harmonic passages are often sequenced in groups of 2-4 measures, and cadential points (either as half-cadence or perfect cadences) typically mark the end of these phrases. Furthermore, most of the jazz standard repertoire prior to the 1960's – primarily Swing, Dixieland, and Bebop tunes – did not deviate from a model built of these symmetrical two to four measure phrase lengths, thus establishing the 4-measure phrase as a durational norm. As Bebop waned, these common forms became the points of departure for creative composers. The well established phrase length norms were broken. Let us take a more in depth look at these norms.

The two most common compositional forms for jazz standards – the 12-Bar Blues and 32-Bar 'Tin Pan Alley' show tune – are wholly comprised of groups of 4-measure

²³ This occurrence is referenced in numerous writings on jazz form: i.e. Waters (2001-2002), Martin (1980, 1988, 1996), Morgan (2000-2001).

phrases. The 12-Bar Blues structure is based on repetitions of groups of three 4-measure phrases – grouped in successive tonic, sub-dominant, and dominant regions. (For examples see Charlie Parker's *Blues for Alice* or John Coltrane's *Blue Trane*: refer to Appendix B for a fakebook reference for all the examples cited.) The 32-Bar form is based on combined groupings of 4-measure phrases – phrases combine to make eight measure sections which further combine to make sixteen and thirty-two measure sections. The most common forms are labeled according to their eight measure groupings either as ABAB^I, AABA, or ABAC.

Morgan Lewis' *How High the Moon* aptly represents the ABAB^I. This form can also be considered as two groups of 16-measure phrases with identical opening 4-measure phrases. The A section is based on two sequential 4-measure phrases each in G major and F major respectively. The B section continues the descending sequence in Eb major and returns to G major for a mid-form half-cadence. The B^I section alters the repeated melody in its third measure to allow for a perfect cadence in G major to end the section.

Herbie Hancock's *Maiden Voyage* provides a clear example of an AABA form. Each A section is made up of two 4-measure phrases over D9sus and F9sus harmony, respectively. In the B section the melody modulates up a third and is supported by respective 4-measure groupings of Eb9sus and Db9sus harmony.

As variations on the 32-Bar formal structure began to be exhausted, composers began to subtly manipulate the formal boundaries of Bebop norms. An example of this can be found in John Coltrane's *Moment's Notice* where the final C section – in an ABAC form – is extended by six measures. The first 24-measures follow the ABA model

accordingly with an A section comprised of two sequential 4-measure phrases followed by an 8-measure B section ending with a half-cadence and an unaltered return of the A section. The final C section however, incorporates a 6-measure dominant pedal into what would have otherwise been an 8-measure B^I section ending on the Eb major perfect cadence. The inclusion of this 6-measure dominant pedal disrupts the flow of the 4-measure phrase, which in turn disrupts the cadential groupings and the subsequent voice leading that occurs over the passage.

Like Coltrane's *Moment's Notice*, Hancock's *Dolphin Dance* also manipulates the 32-Bar form. Although subtle, as compared to the more evident harmonic manipulation that occurs (to be discussed in the following section), a slight skewing of the 4-measure phrase form begins to disrupt the firmly established norms. Except for the addition of two measures at mm. 28-29, *Dolphin Dance* form follows fairly strictly to 4-measure groupings. *Dolphin Dance* begins however, with a 4-measure introduction that does not return – instead the final 4-measures act as a new introduction to the subsequent improvisations. Both of these 4-measure phrases end with a clear cadence – in m. Intro4 and m. 4 respectively – that leads into the next 4-measure phrase. Although this replacement does not disrupt the accumulating of successive 4-measure phrases, the cadence that occurs creates an aural shift where the grouped 8-measure phrase begins and ends; these measures constitute the A section, measures 1-8, with a strong cadence occurring across mm.4-5. The formal norms realign at m.9 with an 8-measure sequence, accounting for the B section. At m.17 the A^I-section thematic material returns; although harmonized, thus impacting the harmonic structure (which will be discussed in the next section). In the final C section, starting at measure 25, the pattern of successive 4-

measure phrases is disrupted. The 2-measure progression at mm.29-30 can be interpreted three ways: either as a stand alone 2-measure, as the third part of a rising sequence from mm.25-30, or as part of a 6-measure phrase when coupled with the E pedal 4-measure section at mm.31-34. Based on these observations, that focus only on the grouping of phrases and cadential figures, *Dolphin Dance* has an ABA^IC formal structure. The following table accounts for these subdivisions:

Section	A		B		A ^I		C		
Measures	Intro 1-4 1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-30	31-34

Table 4 –Formal Structure of *Dolphin Dance*

1.1.2. Harmonic Structure

Compared to the fairly subtle manipulations that occur in *Dolphin Dances*' formal structure, the manipulations of standard harmonic norms emerge quite strikingly. The harmony in *Dolphin Dance* alternates stylistically between tonal and modal passages; furthermore, no clear tonal center emerges within either of these. Tonal and modal passages will now be looked at separately. The tonal passages will be defined and examined in terms of their relation to the bebop style – the prominent style of jazz during Hancock's early development and which closely precedes his *Dolphin Dance* recording. The modal passages will be defined and examined in relation to their emergence in the repertoire within the same period. This section will conclude with a tonal-modal harmonic segmentation of the *Dolphin Dance* Score1.

1.1.2.1. Harmonic Structure - Tonality

Tonality in bebop is best defined through its pervasive use of “two-five-one” cadential figures and cycle of fifths progression movement. These progressions create tonal motion that cumulates in half and perfect cadences ending 4-measure, 8-measure, and/or 16-measure sections. Most bebop melodies – typically reharmonized Tin Pan Alley tunes (or “contrafacts”), blues, and ‘rhythm changes’²⁴ – can be reduced to strings of these descending fifth harmonies²⁵. Coltrane’s *Moments Notice* aptly represents this type of motion and will be now examined in detail.

The first sixteen measures of *Moment’s Notice* is made up primarily of strings of “two-five” (II-V) and “two-five-one” (II-V-I) progressions. These progressions touch briefly on many different tonal centers and cumulate in a half-cadence in the sixteenth measure. Table 5 outlines these occurrences. During this 16-measure progression, seven tonal centers are passed through – D major, Eb major, Gb major, C major, Db major, C minor, and Ab major. The Eb major claimed as the overall tonic does not become apparent until the final measures of section C where a dominant pedal [Bb] drives to an Eb tonic perfect cadence: mm. 31-38 [Eb/Bb | Fm7/Bb | Gm7/Bb | Fm7/Bb | Eb/Bb Fm7/Bb | Gm7/Bb Fm7/Bb | Eb |]²⁶. With the exception of mm. 12-13, II-V and II-V-I patterns make up the entire harmonic fabric.

²⁴ An example of a “contrafact” is Charlie Parker’s *Ornithology* that is based entirely on the chord changes in *How High the Moon*. An example of a “rhythm changes” tune is Sonny Rollins’ *Oleo* or Sonny Stitt’s *The Eternal Triangle*, both based on the chord changes in Gershwin’s *I’ve Got Rhythm*.

²⁵ Refer to Martin (1980), Martin (1988), Strunk (1979), Strunk (1985) for examples of reducing harmonic progressions.

²⁶ Refer to Appendix D for reference to the entire *Moment’s Notice* fakebook/lead sheet chart

Measure	Progression ²⁷	Key	II-V / II-V-I	Comment
1	Em7 A7	D major	II-V	Chromatic below tonal center of Eb major
2-3	Fm7 Bb7 EbM7	Eb major	II-V-I	Tonic Eb major
4	Abm7 Db7	Gb major	II-V	Third relation (Eb→Gb)
5	Dm7 G7	C major	II-V	- Tritone relation (Gb→C) - sequence mm.1-4 →5-8
6-7	Ebm7 Ab7 DbM7	Db major	II-V-I	Chromatic relation (C→Db)
8-9	Dm7b5 G7 Cm7	C minor	II-V-I	Relative minor of Eb major
10-11	Bbm7 Eb7 AbM7	Ab major	II-V-I	Third relation (Cm→Ab)
12-13	Db9 G7 C7#5	---	(V or V/V)	- Dominants suggesting Gb, C, and F major. - Possible V/V (G7→C7#5) and tritone substitution ²⁸ (Db9→G7)
14-15	Abm7 Db7 GbM7	Gb major	II-V-I	Gb major touched on in m.4 through a II-V
16	Fm7 Bb7	Eb major	II-V	Half Cadence in the tonic key of Eb major

Table 5 – Chord Progression for Coltrane's *Moments Notice*

As stand alone units, II-V and II-V-I patterns have roots that move in descending perfect fifths and are typically realized through rootless voicings²⁹ that maintain tight voice leading motion. Furthermore, all of the II-V and II-V-I chords are unaltered – there are no raised or lowered 5th's and no added 9th's, 11th's or 13th's. The voice leading occurs generally in a downward direction. In Example 1 two strings of possible realizations are given. In the top pair of staves the progression begins with a rootless voicing of the Em7 chord built on its 3rd – stacked [G-B-D-F#] or chord tones 3-5-7-9.

²⁷ Chord Progression from The Real Book Vol. 1 (6th ed.) - pg. 280

²⁸ A tritone substitution refers to dominant seven chords that share 3rd's and 7th's whose roots are a tritone apart (i.e. C7 and F#7 share E and Bb/A#). It is common practice to substitute one for the other when realizing a particular chord progression (i.e. progression [Dm7 G7 CM7] will be realized as [Dm7 Db7 CM7])

²⁹ Rootless voicings refer to chord sonorities built typically on either 3rd or 7th degrees. The two most basic rootless voicings ascend as follows: [3 5 7 9] [7 9 3 5]

Lead Sheet

Rootless Voicing 1

Rootless Voicing 2

9 C m7 B^bm7 E^b7 A^bM7 D^b9 G7 C7#5 A^bm7 D^b7 G^bM7 Fm7 B^b7 G7

Example 1– Two Rootless Voicing Realizations for mm.1-16 of *Moment's Notice*

This II resolves to an A7 built on its 7th – stacked [G-B-C#-F#] or chord tones or chord tones 7-9-3-13. The voice leading motion occurs as follows:

Em7	A7	II – Chord Tones	V – Chord tones	Voice Leading
F#	F#	9	13	Common tone
D	C#	7	3	Chromatic down
B	B	5	9	Common tone
G	G	3	7	Common tone

Table 6a – Voice Leading for a II-V progression

Em7	A7	II – Chord Tones	V – Chord tones	Voice Leading
B	B	5	9	Common tone
G	G	3	7	Common tone
F#	F#	9	13	Common tone
D	C#	7	3	Chromatic down

Table 6b – Voice Leading for a II-V progression

In these basic configuration all the tones are held except for the 7th to 3rd [D → C#] chromatic descent. The 3→7, 5→9, 7→3, and 9→13 voice transfers remains constant for all unaltered II-V progressions³⁰. It follows then that deviations from this common tone and downward resolution voice leading will occur as chord tones are altered. This will become important when assessing how particular II-V patterns become realized.

In a tightly voiced II-V-I progression, the voicings of the I and II chord remain the same. The transfer of voices that occurs when moving from a II→V reverses itself when moving from a V→I. This results in a V chord with a unique voicing distinct from the II and the I. Table 6c and 6d respectively show the two versions of this occurrence using the [Fm7 Bb | Eb] progression from mm.2-3:

Fm7	Bb7	Ebm7	II – Chord Tones	V – Chord tones	I – Chord Tones	Voice Leading
G	G	F	9	13	9	Whole tone down
Eb	D	D	7	3	7	Chromatic down
C	C	Bb	5	9	5	Whole tone down
Ab	Ab	G	3	7	3	Chromatic down

Table 6c – Voice Leading for a II-V-I progression

Fm7	Bb7	Ebm7	II – Chord Tones	V – Chord tones	I – Chord Tones	Voice Leading
C	C	Bb	5	9	5	Whole tone down
Ab	Ab	G	3	7	3	Chromatic down
G	G	F	9	13	9	Whole tone down
Eb	D	D	7	3	7	Chromatic down

Table 6d– Voice Leading for a II-V-I progression

It should be noted as well that the voice leading of the 7th→3rd, 13th→9th, and 9th→5th always descends while the voice leading of the 3rd→7th, 5th→9th, and 9th→13th involves a

³⁰ It should be noted that the arrow (→) refers to an X→Y change in pitch sonority either through pitch motion (ascending or descending) or through common tone relation.

common tone. Although some ascending motion occurs outside of the contained II-V-I figures – i.e. between the keys areas a semi-tone apart in mm. 1-2 and mm. 5-6 – the overall accumulated descending motion over the sixteen measures of the *Moment's Notice* passage outweighs the accumulated ascending motion. This direction of voice leading motion will be an important distinguishing factor in deriving the Score3 variations and in their comparisons with the Score2 transcriptions.

II-V and II-V-I progressions continued to be used in hard-bop compositions in the late 1950's and early 1960's. Reminiscent of the harmonic expansive approach that classical composers such as Schubert and Brahms applied to the sonata form tonic-dominant structures, jazz composers, in particular John Coltrane, began stretching the tonal boundaries in their compositions. For example, the tonal center in Coltrane's composition *Giant Steps* is equally distributed between B major, G major, and E flat major³¹ – though harmonic motion is still based on cycle of fifths motion. The following table outlines the tonal distribution of V-I and II-V-I progressions in *Giant Steps*:

Measure	Progression ³²	Key	V-I / II-V-I
1-2	D7 GM7	G major	V-I
2-3	Bb7 EbM7	Eb major	V-I
4-5	Am7 D7 GM7	G major	II-V-I
5-6	Bb7 EbM7	Eb major	V-I
6-7	F#7 BM7	B major	V-I
8-9	Fm7 Bb7 EbM7	Eb major	II-V-I
10-11	Am7 D7 GM7	G major	II-V-I
12-13	C#m7 F#7 BM7	B major	II-V-I
14-15	Fm7 Bb7 EbM7	Eb major	II-V-I
16-(1)	C#m7 F#7 BM7	B major	II-V-I

Table 7 – Chord Progression for Coltrane's *Giant Steps*

³¹ Refer to Demsey (1991) for further discussion on Coltrane's use of third related keys in his compositions.

³² Chord Progression from The Real Book Vol. 1 (6th ed.) - pg. 157

1.1.2.2. Harmonic Structure - Modality

In terms of jazz repertoire, modality surfaces as a naturally occurring response to the harmonic density and improvisation-limiting progression – (or as the “ying” to the “yang” of tonality) – of the hard-bop. The strings of quickly changing II-V-I progressions that constituted the majority of these progressions – coupled with the fact that they are often performed at break neck speeds – inherently constrain the jazz performers to “running the changes”³³. By slowing the tempos and removing the pattern driven II-V-I progressions – and in turn by removing successively dictated tonal centers – a new style emerges. Miles Davis and John Coltrane are two leading figures in this emerging style. Jazz scholar Keith Waters, who specializes in jazz during the late 1950’s → early 1960’s, sums up modal jazz as follows:

Informal descriptions of modal jazz use terms such as ambiguous harmony, static harmony, or coloristic harmony; more analytical discussions typically indicate four techniques characteristic of modal jazz: (1) the use of extended pedal points, (2) the suppression or absence of standard functional harmonic progressions, (3) slow harmonic rhythm, and (4) the associations of a seven-note scalar collection with each harmony: this collection – the mode – provides a repository of pitch classes for improvisation and accompaniment.³⁴

Consider these characteristics during the following discussion on the evolution of jazz modality.

In modal jazz repertoire the harmonic center is typically based on one or two chordal sonorities. The lead sheet typically includes strings of long passages based on a single mode, often up to eight measures³⁵. The lead sheet melody and harmonic labels

³³ “Running the changes” is a slightly derogatory term that refers to plowing through the chord progression by highlighting key chord tones and playing practiced patterns. Creativity and spontaneity become increasingly lost in doing so.

³⁴ Waters (2005) pp.335

³⁵ For example: Coltrane’s *Impressions* and Miles Davis’ *So What* are based on two modal centers [both D dorian and Eb dorian], Davis’s *Flamenco Sketches* is based on five consecutive modal centers [C Ionian, Ab Mixolydian, Bb Ionian, D Phrygian, and G Dorian], and Coltrane’s *A Love Supreme* is based entirely on

suggest a particular mode. For example, in Coltrane's *Impressions* the Dm7 label coupled with a melody that includes E, G, and/or B – the 9th-11th-13th or 2-4-6 equivalent scale degrees – suggests D dorian as its tonal center. Contrary to a D minor tonality, which in terms of the type tonality discussed above would be affirmed through a II-V-I (i.e. Em7b5-A7-Dm), the D minor modality is affirmed through a melodic sounding of a particular mode. Although an Em7b5-A7-Dm progression could be encapsulated through a D harmonic minor scale, the chords determine the tonality. The order is important to note here as it changes when considering tonality in a modal setting; in a modal setting the mode (or scale) determines the tonal center and from there the accompanying chords are derived. In essence, in tonality, tonal chord progressions determine the key through a successive set of chord tones which when taken as a whole make up a particular scale. Contrarily, in modality, modal scales determine the key and the chord progressions are formed by highlighting pitches from the mode. Table 8 provides a visual display of the tonal-modal differentiation.

Tonality – D minor			Modality – D Dorian		
Given Chord Progression	→	Resulting Scale	Given Mode	→	Resulting Chord progression
Em7b5 [E G Bb D] A7 [A C# E G] Dm [D F A]	→	D E F G A Bb C# D harmonic minor	D E F G A Bb C D Dorian	→	Dm7, Gm7, Em7b5, Am7, etc (endless combinations)

Table 8 - Tonal-Modal Differentiation

By way of example, consider the D harmonic minor scale as the mode/scale used in a modal progression. In this case all three II-V-I tonal harmonies [Em7b5-A7-Dm] could result from highlighting pitches from the mode. Although a tonality based progression

one mode [F Dorian]. Also, extended solo sections and/or introductions and outro vamps are often based on one mode – Coltrane's version of *My Favourite Things* [E Dorian].

could result, the result would be coincidental, as the order of chord realization is not dictated and other chords could be chosen that equally highlight the D harmonic minor mode: i.e. BbM7 [Bb D F A] or Gm7 [G Bb D F].

It is important to note the tonal-modal distinction for two reasons. First, an evolution of tonal and modal progressions begins to occur in the early 1960's where the boundaries between the two harmonic styles begin to blur. Secondly, the way a jazz performer improvises over a particular progression will reveal its tonal or modal quality. For example, if the soloist chooses to highlight successive chord tones through voice leading structures, this suggests a more tonal quality. If the soloist chooses to highlight an array of scale pitches, this in turn suggests a modal quality.

Hancock uses a tonal-modal hybridized compositional style in *Dolphin Dance*. Three examples taken from Hancock's compositions will demonstrate the evolution of this hybrid.

1) *Maiden Voyage* is representative of the early modal jazz repertoire where single harmonies occur over large spans. In this example the entire lead sheet is comprised of four measure groupings of singular harmonies – refer to the following example:

The image displays a musical score for the harmonic progression of "Maiden Voyage". It consists of two staves of music. The first staff contains four measures of music, each with a chord label above it: D9sus, F9sus, D9sus, and F9sus. The second staff contains four measures of music, each with a chord label below it: E9sus, D9sus, D9sus, and F9sus. The music is written in a key signature of one flat (Bb) and a 4/4 time signature. The notes are primarily eighth and quarter notes, with some rests.

Example 2 – *Maiden Voyage* harmonic progression (*Score 1*)

Two evolutions in modal setting, albeit slight, occur in this composition. First, the duration and frequency of the harmonies decrease and increase respectively when compared to Davis' *So What* and Coltrane's *Impressions* – the two pieces that most exemplify jazz modality. In Davis's and Coltrane's prototypical models the only two harmonic segments (D minor/Dorian and Eb major/Ionian) are present in the progression and both last for either sixteen or eight measure measures. Second, the mode implied by the melody and the "9sus" harmony that occurs throughout the *Maiden Voyage* progression is also somewhat ambiguous: the implied dominant sonority never resolves to a "I" chord nor does the suspended 4th ever resolve to a 3rd. In *So What* there is no ambiguity in the modality of each harmonic segment – i.e. in the D minor segment, the melody and chording clearly outline D Dorian. In the *Maiden Voyage* progression the "9sus" either implies a Mixolydian or Dorian mode. In either implication, the same modal quality likely maintains itself over the entire progression. Table 9 shows the harmonic breakdown with the Mixolydian mode implied:

Measure	Harmony	Chord Tones	Implied Mode (implied 3 rd – unresolved)	Mode
mm.1-4, 9-12, 25-28	D9sus	D G A C E	D E (F#) G A B C	D Mixolydian
mm. 5-8, 13-16, 29-32	F9sus	F Bb C Eb G	F G (A) Bb C D Eb	F Mixolydian
mm. 17-20	Eb9sus	Eb Ab Bb D F	Eb F (G) Ab Bb C Db	Eb Mixolydian
mm. 21-24	Db9sus	Db Gb Ab C Eb	Db Eb (F) Gb Ab Bb Cb	Db Mixolydian

Figure 9 – Breakdown of the *Maiden Voyage* harmonic structure

2) In *One Finger Snap* a four measure chord break is followed by an eight measure passage based primarily in Eb root – refer to Example 3 for the lead sheet segment. During mm.5-12 of this passage the Eb sonority shifts from Eb13sus to Eb13 to Ebm9³⁶. Where the [Ebm9 Ab13] could be considered a tonally based II-V progression in the key

The image shows two staves of musical notation. The top staff is labeled "No Chord" and the bottom staff is labeled "5". Below the notes, a series of chord symbols are aligned with the measures: Eb13sus, Eb13, Eb13sus, Eb13, Ebm9, Ab13, Ebm9, Ab13. The notation includes various musical symbols such as treble clefs, key signatures (one flat), and note values (quarter, eighth, and sixteenth notes).

Example 3 – *One Finger Snap* segment of harmonic progression

of Db major, there is no resolution to this absent “I”; the chord following this passage is a G half-diminished (as a II in F minor). Also, the preceding Eb dominant sonority skews hearing the [Ebm9 Ab13] passage as tonal. Furthermore, the [Ebm9 Ab13] could be considered as part of a mode that is only one chromatic pitch away from the Eb dominant sonority. See Table 10a which describes the voice leading connection of the harmonies in Example 3 and Table 10b for a modal relation between the two 4-measure segments.

Seen from an evolved modal perspective, Hancock takes an 8-measure passage and balances it harmonically between two Eb modes: Mixolydian and Dorian. The suspended dominant sonority initially blurs these modes as the Ab pitch resolves first to G and eventually to Gb. This chromatic voice leading, as highlighted in the shaded row in

³⁶ The Ab13 in Figure 3 can be linked to the Ebm9 as part of a II-V bebop-like harmonic combination. This further shows the hybridized nature of the chordal progression.

Eb13sus		Eb13		Ebm9		Ab13		Voice Leading
Chord Pitches	Chord Tones	Chord Pitches	Chord Tones	Chord Pitches	Chord Tones	Chord Pitches	Chord Tones	
C	13	C	13	Bb	5	Bb	9	Common tone / WT down
Ab	sus4	G	3	Gb	3	Gb	7	Chromatic down
F	9	F	9	F	9	F	13	Common tone
Db	7	Db	7	Db	7	C	3	Common tone / Chromatic down
Eb	1	Eb	1	Eb	1	(Eb)	(1)	---

Table 10a – Voice leading connection between harmonies in the *One Finger Snap* segment

Eb mixolydian (mm.5-8)			Eb Dorian (mm.9-12)		
Harmony	Chord Tones	Mode	Harmony	Chord Tones	Mode
Eb13sus	Eb Ab Bb Db F C	Eb mixolydian	Ebm9	Eb Gb Bb Db F	Eb dorian
Eb13	Eb G Bb Db F C	Eb mixolydian	Ab13	Ab C Eb Gb Bb F	Eb dorian

Table 10b – Modal connection between the two 4-measure segments

Table 10a, provides the only distinction between these modes. Arguably an altered scale including both raised and lowered 3rd [i.e. Eb F Gb G Ab Bb C Db]³⁷ would adequately encompass the entire 8-measure passage into a singular mode. Also consider that in another fakebook – *The Real Book Vol. 1* (6th ed.) - pg. 330 – the 8-measure passage is reharmonized as two 4-measure progressions of Bbm7 and Ebm7 respectively. In this case the Bbm7 could be rethought of as an Eb mixolydian progression³⁸ while the Ebm7 implies a Dorian mode, thus maintaining an Eb pedal throughout.

³⁷ Both the jazz based Bebop scale [1 2 3 4 5 6 b7 7] and the Bebop Major Scale [1 2 3 4 5 b6 6 7] incorporate both a raised and lowered scale degree pitch – the 7th and 6th respectively.

³⁸ The pitches of Bb dorian are the same as Eb mixolydian → Bb C Db Eb F G Ab.

3) The progression in *Speak like a Child* highlights a similar evolved modal harmonic approach to the one discussed in *One Finger Snap*. The passage shown in Example 4 of mm.5-20 displays an even denser chromatic treatment of the 4-measure evolved modal passage. Measures 5-8 and 17-20 harmonically compare to a condensed version of

The musical notation for Example 4 consists of two staves. The first staff contains measures 5-8 with the following chords: B $\flat$ 13, B $\flat$ 7#5, B $\flat$ m9, E $\flat$ 13, A $\flat$ 13sus, A $\flat$ 13b9, and G7alt. The second staff contains measures 17-20 with the following chords: G $\flat$ m7#11, F#o7add9, E $\flat$ 9sus, E $\flat$ 13, E $\flat$ m9, and D7#9. The notation includes various accidentals, ties, and triplets.

Example 4 – *Speak Like a Child* mm.5-20 segment

the above E $\flat$ passage – as a dominant/Mixolydian mode followed by a II-V /Dorian mode. In the first four measures the B $\flat$ sonority shifts from B $\flat$ 13 to B $\flat$ 7#5 to a [B $\flat$ m9 E $\flat$ 13] where the II-V does resolve down a fifth, though to a dominant “I”. This passage differs in that there is no suspension on the initial dominant and a #5 alteration is added in the second measure. The addition of the #5 creates an even smoother voice leading transfer of the 13th of the B $\flat$ to the 9th of the E $\flat$: G (13th of B $\flat$) → F# (#5 of B $\flat$) → F (5th of B $\flat$ and 9th of E $\flat$). In the final four measures the progression parallels exactly with a condensed version of the excerpt extracted from *One Finger Snap* with the exception of the D7#9. Expecting an A $\flat$ 13, the D7#9 can be thought of as a tritone substitute. Table 11 tracks the voices in this substitution – or implied A $\flat$ 13:

Ab13		D7#9	
Chord Pitches	Chord Tones	Chord Pitches	Chord Tones
F	13	F	#9
C	3	C	7
Bb	9	A	#5
Gb	7	F#	3
Ab	1	D	1

Table 11 – Tritone substitution: D7#9 → Ab13 near equivalence

If the D7#9 were voiced with a #5 the only difference between the two chords would be their root – where the Eb→D roots voice lead more smoothly than an Eb→Ab root movement and the chromatic root movement is more conducive to the chromatic movement present in the rest of the passage. Note as well that the voice exchange that occurs in a tritone substitution is identical to that which occurs in a tightly voiced II-V-I progression – i.e. 3rd ↔ 7th, 5th ↔ 9th, and 9th ↔ 13th voice transfers³⁹.

In mm. 12-15 a unique modal shift occurs between the GbM7#11 and the F#o7add9. Table 12 tracks the voice movement that occurs between these two sonorities:

GbM7#11		F#o7add9	
Chord Pitches	Chord Tones	Chord Pitches	Chord Tones
C	#11	C	b5
Ab	9	G#	"add9"
F	7	E	7
Bb	3	A	3
Gb	1	F#	1
Suggested mode: Gb Ab Bb C Db Eb F Gb Lydian		Suggested mode: F# G# A B C D E ⁴⁰ F# 6 th mode ascending melodic minor	

Table 12 – Shift in modality between Lydian and diminished sonorities

³⁹ The double arrow (↔) makes reference to the voice transfers that occur in either substitution: i.e. in this example an Ab13 being substituted for a D7#9, OR a D7#9 being substituted for an Ab13. The same voice transfers would also occur in a D13 ↔ Ab7#9 substitution.

⁴⁰ 6th mode ascending melodic minor refers to an ascending melodic minor scale (w/ lowered 3rd and raised 6th and 7th) starting on the 6th note – in this case an A melodic minor scale [A B C D E F# G#] starting on an F#

By stretching the modal relationship between these two Gb/F# root based modes – specifically by altering the 3rd and 7th chord tones – Hancock creates a slowly descending chromatic passage (coupled with the Ab13b9 G7alt) that bridges the Bb and Eb based dual-modal passages.

Returning to the summation of modal jazz characteristics introduced by Waters on page 27, we will now examine how these three passages fit accordingly. (1) Both *One Finger Snap* and *Speak Like a Child* imply pedal points: an 8-measure Eb pedal point and 4-measure Bb and Eb pedal points respectively. The progression in *Dolphin Dance* contains more explicit pedal point passages which will be discussed in the following section. (2) Although some of these progressions contain II-V figures, they are not tonally functional. None of the passages contain tonally resolving II-V-I standard functional harmonic progressions. (3) *Maiden Voyage* best demonstrates a slowed down harmonic rhythm with each harmony lasting 4-measures. This duration heavily contrasts a progression such as that in *Moment's Notice* where up to three keys can be passed through in 4-measures. (4) In all the examples there is an association with some kind of mode, whether the mode is clearly articulated or mostly implied.

Analysis of these three passages also show the type of harmonic manipulation that can occur when considering lead sheets progressions as blocks of either tonal or modal passages. In *Maiden Voyage*, 4-measure blocks of transposed 9sus dominant sonorities are mapped out in sequence. In *One Finger Snap*, suspended dominant/Mixolydian modes are coupled with II-V/Morian based modes to create a chromatically blurred dual-mode. Finally, in *Speaks Like a Child*, the dual-mode is condensed to shorter durations

and is chromatically infused. This results in a much denser modally-based harmonic fabric. The density of the harmony in the third example ironically approaches the tonal density of the harmony in Coltrane's *Moment's Notice* and *Giant Steps*, and goes against the simplicity of the originally conceived anti-complex modal settings of Davis's *So What* and Coltrane's *Impressions*. The subtle chromatic shifting, though, that occurs in a passage such as that in *Speaks like a Child* can be made to sound simple in the hands of an experience player, or a master such as Herbie Hancock.

1.2 Harmonic and Formal Structural Analysis of *Dolphin Dance*

This section presents an analytical breakdown of the harmonic and formal structure of *Dolphin Dance*. First, the Score1 harmonic structure will be segmented into its tonal and modal components. The tonal passages will be isolated based on the harmonic progression containing a II-V or II-V-I chordal sequence. The modal passages, being slightly more difficult to categorize, will be initially isolated according to their non-tonal quality and then codified according to their unique harmonic properties – parallels will be drawn to the types of extended modality as seen in the three examples in Figures 2-3-4. Secondly, the *Dolphin Dance* formal structure will be reexamined to determine the impact of the harmonic analysis on its 4-measure and large section designations.

The formal structure, all ready proposed in Table 4 and reduplicated here in Table 13, highlights the 4-measure groupings and large scale sections:

Section	A		B		A ^I		C		
Measures	Intro 1-4 1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-30	31-34

Table 13 – Formal Structure of *Dolphin Dance*

With the exception of the added measures, mm.29-30 shaded in Table 13, *Dolphin Dance* seems to fit into the typical 32-measure ABAC mould. The sectional determination, based at this point on the melodic figures, needs to, however, be reconsidered when the harmonic structure is taken into account. Prior to this reconsideration though, the nature of the tune's harmonic structure needs to be examined in detail.

Dolphin Dance lacks a definite tonal center. Contrary to typical jazz standards or modal jazz repertoire that clearly articulate a particular tonality through section ending

cadential figures or explicit mode articulating passages, *Dolphin Dance* evolves harmonically beyond this type of clearly defined tonality and modality. Instead the harmony alternates between tonal and modal structures as follows: modal (mm.1-3), tonal (mm.4-16), modal (mm.17-23), tonal (mm. 24-30), and modal (mm.31-34). Out of 34 measures, 14 are modal (41%), and 20 are tonal (59%). This near even division of basic harmonic qualities reinforces the hybridized nature of the harmonic structure. A more precise analysis follows:

- C minor (mm. 4-16) – with brief excursions to the dominant G major.
- G modal (mm. 17-20) – these four measures can be reduced to a G major mode that balances between a mixolydian (F natural in G7sus) and Lydian (C# in A/G) mode: a Lydian-Dominant⁴¹ mode would fit most appropriately.
- F modal (mm. 21-24) – these three measures can be reduced to a Lydian-Dominant mode as a sequential passage to the preceding.
- The rising sequence passage from mm. 25-30 suggests a stronger tonal character than modal, but there is no clear tonality; arguably the next implied II-V in the sequence would be [Dm7 G7], recalling m.4. The pervasive use of II-V figures, though, suggest tonal harmony rather than modal harmony.
- E modal (mm. 31-34) – the E pedal suggest that a modality be considered from an E root perspective. Coupled with alternating DM7 and CM7 sonorities E Dorian

⁴¹ Lydian Dominant mode refers to a major scale mode with both a raised 4th and a lowered 7th – i.e. G Lydian Dominant = G A B C# D E F G. This mode is also equivalent to a 4th mode D ascending melodic minor – i.e. D E F G A B C# D starting on the 4th scale degree G.

and E Phrygian would fit most appropriately – no one mode can accommodate both the C#-C and F#-F pitches.

- Bb modal (mm. 1-3) – the major/minor/sus chromatic evolutions parallel the harmonic manipulations discussed earlier with the Eb sonorities in *One Finger Snap*.

If a singular tonal center were to be considered, each of the above harmonic regions would need to fit into a hierarchical model; which would inherently elevate the prominence of certain passages. In doing so, it would be logical to apply a Schenkerian model to the entire lead sheet, and thus designate a certain voice leading string (i.e. the *ursatz*) as part of the *deep structure* (or *background*) Score1.

Refer to Table 14 on the next page for the following discussion that considers C minor as the definitive tonal center. C minor is reaffirmed in *Dolphin Dance*'s Score1 through the following: 1) II-V-I figures in m.Intro4 and m.4; 2) the presence of C minor's dominant – G major – in mm.8-9 and mm.15-20, and its relative major – Eb major – in mm.Intro1-3 and mm.1-3; and 3) the substituted [Fm7 Bb7] cadential figure in mm.11-12. It should be noted that a IV-bVII is commonly used in compositions as a substitution for a II-V⁴². Refer to Table 15 for the relationship of IV and II, and bVII and V as components in this substitution.

⁴² For example, in Tadd Dameron's *Lazy Bird* an [Fm7 Bb7] resolves to [CM7] , and in Erroll Garner's *Misty* an [EbM7] is preceded by an [Abm7 Db7].

Measure	Lead Sheet Tonal – Light Shade Modal – Dark Shade		C Minor Tonality Substitutions Shaded		Other Options
Intro 1	EbM7		Cm9		
Intro 2	Bbm7		Cm11 (Cm7b5)		
Intro 3	EbM7		Cm9		
Intro 4	Dm7b5	G7	Dm7b5	G7	
5	Cm7		Cm7		
6	AbM9(#11)		D7b5		Am7 D7
7	Cm7		Cm7		
8	Am11	D7	Am11	D7	
9	GM7		GM7		
10	Abm7	Db7	Dm7b5	G7b9	
11	Fm11		Dm7b5		Ab7
12	Bb7		G7b9		Galt ⁴³
13	Cm7		Cm7		
14	Cm7/Bb		Cm7/Bb		
15	Am11		Am11		
16	D7		D7		
17	Cm7		G		
18	Cm7		G		
19	Cm7		G		
20	Cm7		G		
21	Cm7		F		
22	Cm7		F		
23	Cm7		F		
24	Em11	A7	Em7b5	A7	Bbm7 Eb7
25	Eb7#11		A7b5		Bbm7 Eb7
26	Am9	D13	Rising Sequence – next expected: Dm7 G7		Am7 D7
27	Bm7				Bm7 E7
28	E7	Dm7			C#m7 F#7
29	C#m11				Dm7 G7
30	F#13		? Deceptive cadence +/- half step		
31	Cm7				Bbm7 Am7/Bb with Bb pedal as leading note of C minor or b6 of Eb major
32	Cm7				G major with D-C as V- IV and E as relative minor?
33	Cm7				
34	Cm7		Gm7b5		G7#5
1	Dm7b5				Gm7b5
2	Bb7b9/b5				G7b9
3	Bb7b9/b5				Galt
4	Dm7b5	G7b9	Dm7b5	G7b9	

Table 14 – *Dolphin Dance* Tonal/Modal passages and Proposed C minor Tonality

⁴³ “alt” refers to a dominant sonority that contains a b13 (#5), #9, and optional #11 and b9 (Levine 1995) – i.e. Galt contains a [G B F Eb Bb] with optional [Db Ab]. Galt could also be thought of as an Eb/G7.

IV → II				bVII → V			
Fm7		Dm7b5		Bb7		G7b9	
Eb	7	D	1	---		G	1
C	5	C	7	Ab	7	Ab	b9
Ab	3	Ab	b5	F	5	F	7
F	1	F	3	D	3	D	5
				Bb	1	B	3

Table 15 – IV-bVII substitution for II-V

Each of the third related chords share three pitches (see shading in above table). In the IV→II substitution, only the root of the II is missing in the IV chord. If a b9 extension [Eb] were added to the Dm7b5 sonority, all four pitches of the Fm7 would be retained in the substitution, thus fully aligning the two chord's pitch proximity. In the bVII→V substitution, only the respective roots [Bb and G] are absent from the substituted chord. Again, if harmonic extensions were added, the chord tones could map fully onto one another; if a 13th [G] and a b9 [Cb or enharmonic B] were added to the bVII chord and a #9 [A# or enharmonic Bb] were added to the V chord⁴⁴. It could also be noted that the roots of these chord substitutions lie in a mirrored orientation on the circle-of-fifths: Bb→F→"C"←G←D. This third-related substitution, although accommodating the functional voice leading of the II-V, does not strongly reiterate a C minor tonality.

To fit the harmonic structure of *Dolphin Dance* into a more convincing C minor orientation, let us now consider the substitutions required to do so. For this hypothetical excursion, four substitution techniques will be discussed: tritone substitution, third-

⁴⁴ Therefore, Bb13b9 and G7b9#9 map fully onto one another – i.e. they both contain [Bb D F G Ab B] pitches.

related substitution, II-V expansion, and modal reduction⁴⁵. Refer to the Table 15 (on the following page) for examples of these substitutions.

Tritone substitution, (reference in Section 1.1.2.2) is applied in measures 6, 10, and 25. In m.10 a tritone substitution is applied to both the “II” and the “V”. In this case a II-V in C minor results. The following table tracks the pitch proximity between the two II-V’s:

II – Tritone substitution				V – Tritone substitution			
Abm7		Dm7b5		Db7		G7b9	
Gb	7	F	3	F	3	F	3 7
Eb	5	(Eb)	(b9)	Db	1	D	5
Cb	3	C	7	Cb	7	B	3
Ab	1	Ab	b5	Ab	5	Ab	b9
---		D	1	---		G	1

Table 16 – Tritone substitution of a II-V in Gb major → C minor

The tritone substitution of the “V’s” result in three common tones being retained, while only one (or two if extending the D half-diminished harmony with a b9) common tone is retained in the “II’s” substitution; the proximity of the 3rd and 7th chord sonorities in the II’s substitutions remain within a semi-tone, thus maintaining a smooth voice leading. It should be re-noted (refer back to section 1.1.2.1) that taken as a II-V group [Abm7→Db7 and Dm7b5→G7b9], the voices of both chords connect even more tightly.

⁴⁵ Substitutions (or reharmonizations) are discussed in most texts on jazz theory. Refer to Levine (1995) or Haerle (1978) detailed discussions on this jazz topic,

The third-related substitution (discussed above for mm.11-12) is applied to mm.1-3 and Intro1 and Intro3. In these measures V-I figures in Eb major are substituted with V-I figures in C minor, respectively. The following Table outlines these chordal proximities:

Bb (V of Eb) → G (V of Cm)						Eb → Cm	
DbM7/Eb→Gm7b5		Bb7b9/Eb→G7b9		Bb7susb9/Eb→Galt		EbM7	Cm9
C	Bb	Cb	B	Cb	B	D	D
Ab	G	Ab	Ab	Ab	G	Bb	Bb
F	F	F	F	F	F	G	G
Db	Db	D	D	Eb	Eb	Eb	Db
---	---	Bb	G	Bb	Bb	---	C
Eb	(F or Db)	Eb	(F or D)	Eb	(Eb)		

Table 17 – Third related substitution of V-I figures in Eb major to C minor

The third relation substitution results in over half of the pitches being retained, in particular the Eb→Cm where all the EbM7 pitches map into a Cm9 sonority. The Bb→G substitution proves to be less convincing, especially when considering the conflict of the respective Eb and G pedal/root. Bass pitches aside, all of the voices (except the C→Bb in the first chord substitution) move by semi-tone.

The expansion of dominant sonorities into II-V figures is another form of substitution applied, as seen in measures 6 and 25. Adding a “II” to an all ready present “V” chord reinforces the localized tonality by bringing out more scale pitches inherent in the existing or implied “I” chord. For example, a D7 reinforces G major through the pitches [D F# A C] (in particular the C-F# tritone, unique to G major). But by preceding it with an Am7 that includes two other G major-compatible pitches [G E], G major is further reinforced.

Finally, a modal reduction substitution is applied to mm.17-22. In this instance the chromatically inflected G major/pedal and F major/pedal passages are reduced to basic G major and F major respectively – arguably considered as dominant and sub-dominant prolongations. The chromatic inflections refer to the changes in pitch suggested by the chords. For example in the F mode passage from mm.21-23, the F7sus G/F suggest both [Bb] and [B] for F mode scale degree four. This pitch conflict introduces a chromatic inflection into the passage. By simplifying this passage through a modal reduction, any number of chromatic inflections could be introduced by the performer, that either lead towards a C minor orientation or otherwise.

Given this perhaps excessive usage of substitutions there is a certain futility in attempting to force single tonality-based perspective on a harmonically diverse piece such as *Dolphin Dance*. For example, if a [Dm7 G7] were substituted for the [Abm11 Db7] so as to bring it in line with C minor, then the pitches Db and Eb get bypassed, thus removing important harmonic features from the original passage. Secondly, a passage such as that occurring from mm.31-34 would need to be stretched too far – so as to completely lose its original harmonic identity – to find itself within a C minor tonality.

The formal structure will now be reexamined to see how the harmonic tonal/modal structure impacts our understanding of the previously determined 4-measure groupings and overall ABA¹C formal design. The most notable conflict in structural consideration occurs in mm.17-24 (A¹) during the return of the A Section melody. Two compositional changes impact this conflict: a change in melodic pitch content and a

reharmonization of the melody. Refer to the following example for three versions of the A section melody extracted from the *Dolphin Dance* Score1:

The musical score consists of three staves, each showing a different reharmonization of the same melody. The first staff (measures Intro1-8) uses chords: EbM7, Bbm9, EbM7, Dm7b5, G7, Cm7, AbM9#11, Cm7, Am11, and D7. The second staff (measures 1-8) uses chords: DbM7/Eb, Bbm9/Eb, Bbm9sus/Eb, Dm7b5, G7b9, Cm7, AbM9#11, Cm7, Am11, and D7. The third staff (measures 17-24) uses chords: GM7, G9sus, A/G, G9sus, F7sus, G/F, F7sus, Em11, and A7. The melody is written in treble clef with a key signature of one flat (Bb) and a common time signature (C).

Example 5 – Reharmonization of A Section Melody
mm.Intro1-8. mm.1-8, and mm.17-24

Although both the melodic contour and rhythmic figures of the melody repeat exactly, the melodic pitches do not: the pitches in mm. Intro1-Intro3, mm.1-3, and mm.17-19 vary considerably. In the first two measures the melodic figure is transposed. While the successive intervallic content of each transposition remains the same (up a semi-tone, up a whole-tone, down a perfect fourth) their respective relation to the designated harmony is not consistent: the melodic figure for the EbM7 and GM7 harmony (in the first and third staff respectively) begin in the 3rd degree of both chords whereas the melodic figure for the DbM7/Eb harmony (in the second staff) begins on the major seventh.

The other melodic discrepancy occurs in the third measures (m.Intro3, m.3, m.19) in Example 5. In the third staff (m.19) the second and third pitches are raised from an [Ab-Bb] to an [A-B]. This chromatic alteration affects the successive intervals of the

melodic figure: instead of an ascending semi-tone, whole-tone followed by a descending perfect fourth, the figure begins with two ascending whole-tones followed by a descending diminished fifth. Also, the respective relation of each melodic figure to its designated harmony is different: beginning on a chordal 3rd (G of EbM7), 6th (G of Bb7susb9.Eb), and 7th (G of A/G) respectively. The proceeding [Ab-Bb] and [A-B] pitches of the melodic figure are compositionally set according the designated harmony. Pitches [Ab-Bb] align closer with EbM7 and Bb7susb9/Eb harmony as the respective 4th-5th (instead of #4-#5: A-B) and 7th-root (instead of M7-b9: A-B). Pitches [A-B] align closer with the A/G harmony as the root-2nd (instead of the M7-b9: Ab-Bb).

Another striking discrepancy in melodic-harmonic relation occurs in the sixth measures (m.6, m.6, m.22) in Example 5. The unaltered melody [D] is set to two radically different harmonic sonorities: [AbM9#11] and [G/F]. Within an Ab harmonic setting the melodic [D] becomes a #11. Within a G harmonic setting the melodic [D] becomes reinterpreted as a 5th.

In summary, the reharmonization of the A Section material results in melodic transpositions, changes in successive intervallic content in melodic figures, and changes in melodic-harmonic relationships. These changes clearly impact the formal structure, but to what degree? Do the reharmonizations constitute a change in formal structure designation? Consider that these passages will be improvised over. Improvisations are based on both the melodic (i.e. intervallic content and contour) and harmonic (i.e. designated sonorities) content of the lead sheet. The reharmonizations will likely yield different melodic interpretations, and varying implied harmonies. These improvised variances will directly impact the voice leading connections created for each A Section

passage. These resulting differences (either perceived or actual) are substantial enough to suggest different formal qualifiers for these sections. It should be restated that since mm.Intro1-4 occur only one time, they will not be considered in the overall formal structure, thus only mm.1-8 and mm.17-24 will be included. The following Table 18 shows a revised through-composed formal structure for the *Dolphin Dance* Score1:

Section	A		B		C		D		
Measures	Intro1-4 1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-30	31-34

Table 18 – Revised Formal Structure of *Dolphin Dance*

Ultimately both ABA¹C (refer back to Table 13) and ABCD formal designs apply, depending on the weight given to melody and harmony (respectively). When considering, though, that the form provides the basis for repeated improvisations and that both lead sheet melody *and* harmony are central to this form, *Dolphin Dance* adheres more to a through-composed ABCD structure than a structure where the repetitions are clear. The lack of clarity in formal design also highlights the type of formal and harmonic manipulation that composers such as Hancock were experimenting with during the time of *Dolphin Dance*'s release.

Part II: Jazz Theory “Treatises”

Now that Score1 has been determined and the formal and harmonic structures of *Dolphin Dance* have been examined, the theoretical foundation for the derivation of the Score3 variations will now be laid by turning to theoretical treatises on jazz harmony. Although there is no definitive treatise on jazz theory there are a number of experts in the field of jazz education that have written extensively on jazz harmony. Four prominent authors in this area – Jerry Coker, Dan Haerle, Mark Levine, and David Baker⁴⁶ - represent this vast body of work. Their texts will be considered the “Treatises” by which to build this foundation. As the forthcoming analysis deals with piano improvisations, primarily texts concerning jazz *piano* will be scrutinized. This foundation will lead to the Score3 variations and the analytical framework through which to tie Score1, Score2, and Score3 together.

The cornerstone of this foundation will be based in the voice leading of basic tonal and modal progressions- the two types of progressions that constitute the harmonic makeup of *Dolphin Dance*. Jerry Coker (JC), Dan Haerle (DH), Mark Levine (ML) and David Baker (DB) each cover harmonic progressions in their respective texts, each with their own unique perspective and approach to chord labeling and harmonic sonorities.

Appendix B represents of a collection of basic tonal and modal harmonic realizations – specifically harmonic voicings of II-V-I and modal sonorities. Since there are an infinite number of possible harmonic realizations, the collection is by no means

⁴⁶ Although there are 100's of authors writing on jazz harmony, these four authors have written quite extensively in the jazz idiom, they are often referenced in scholarly writing on jazz topics (i.e. Haywood 1991), and they have years of university teaching experience and jazz performance experience.

complete. Also, since there is much duplication of material among the four authors, repeated material has been removed – i.e. although Mark Levine covers a lot of the same material as Jerry Coker (e.g. basic rootless voicings) this material is not repeated in his section. Therefore, Appendix B should be considered more cumulative than exhaustive.

2.1. Tonal Consideration

Jerry Coker (tonal)

In *Jazz Keyboard*, by Jerry Coker, one can track the evolution of the rootless voicing. It is the most basic piano accompaniment voicing type to evolve out of the swing/stride piano tradition. Pianists such as Bud Powell and Bill Evans helped to normalize this new accompanying sound, which elevated extended harmonic sonorities – i.e. 9th's, 11th's, and 13th's – to the fore. JC-1- 2⁴⁷ outlines basic 1-3-5-7 two hand chord voicings and their inversions. JC-3 continues with 4-voice sonorities that include harmonic extensions (#11th and 13th) and a range of ascending 1-7-3-x voicings (where x equals b5, 5, #11, #5, and 13th). JC-4 extends the top note to a 9th or 13th, thus setting the frame for the rootless voicing in JC-5 where the LH root note is dropped and the LH top note moves to the RH part of the voicing. The voice transfer of the 3rd $\leftrightarrow$ 7th, 5th $\leftrightarrow$

⁴⁷ Appendix A will be referred to as follows: [authors initial] – [example number(s)] – i.e. JC-1-2 refers to Jerry Coker's first and second example in Appendix B.

9th, and 9th $\leftrightarrow$ 13th⁴⁸, all ready discussed at length in section 1.1.2.1. constitutes the voice leading movement as seen in JC-5a-b.

Dan Haerle (tonal)

Haerle explores at length the 4-voice rootless voicing in *Jazz/Rock Voicings for the Contemporary Keyboard Player*. DH-1-2 outlines many variations of II-V-I rootless voicing realizations; inversions based built on the 3rd and the 7th are included. (Although an inversion built on the other chord tones [i.e. 5th, 9th, and 13th] are certainly possible they are less commonly used in real practice and thus are excluded.)

Concerning voice leading, neither inversion holds primacy over any other for our study. Instead, the actual connection of pitches in successive tightly voiced sonorities will be of concern. For example, in DH-2c it is more important that the 5th [A] of the Dm9 chord resolves either down to the b9 (m.1) or up the #9 (m.2) rather than the fact that it is in the third voice (mm.1-2) or the top voice (mm.3-4).

DH-3 presents five examples of voice leading in tritone substitution. (refer back to footnote 28 and the *Speaks Like a Child* discussion in section 1.1.2.2. on the tritone substitution) In these examples the substitution results in the “V” in a II-V-I progression changing to a bII, thus resulting in a II-bII-I progression. It should be noted that the tritone substitution results in a change in the bass movement from descending fifths (in a II-V-I) to descending semi-tones (in a II-bII-I). All of the pitches in the five examples are retained. The voice exchanges in all these tritone substitutions occur as follows, in the key of F:

⁴⁸ The “x $\leftrightarrow$ y” double arrow refers the voice transfer (either in pitch movement or common tone retention) of either x to y or y to x.

V - Chord Tones (C7)	bII - Chord Tones (Gb7)	Pitches for C7 → Gb7 substitution
13	#9	A
#9	13	D#
9	#5	D
#5 (b13)	9	G#
7	3	Bb (A#)
3	7	F
b9	5	Db (C#)
5	b9	G
b5 (#11)	1	F#
1	b5	C

Table 19 – Voice transfers in a tritone substitution (key of F)

With a tritone substitution all the voice exchanges are a tritone interval apart. Of the six possible pairs of tritones the above table includes only five, omitting the [4th M7th] pair. The respective 4th and M7th pitches are almost never included in any dominant-seventh harmonization. These two tones directly conflict with the fundamental chord defining tones of the dominant seventh, the 3rd and 7th. By disrupting these defining tones, the dominant seventh (or tritone substitution) would lose its harmonic functionality. Inherent in this loss is a potential skewing of the voice leading connections, in particular the voice transfer of the 3rd $\leftrightarrow$ 7th that occurs in the II-V-I or II-bII-I progression.

Mark Levine (tonal)

Mark Levine's *The Jazz Piano Book* is one of the most widely used and influential all-encompassing books on jazz⁴⁹. Levine begins with simple 3-note voicings as seen in ML-1. He progresses through to rootless voicings and their basic alterations in a similar manner to Coker and Haerle. Some of these sonorities are outlined in ML-2.

In his section on *Upper Structures*, sonorities are voiced in a bi-chordal setting: a triad on top is voiced above the 3rd-7th tritone pair in a dominant seven sonority. In ML-3 an array of triads – D major, Ab major, A major, F# minor, Eb major, Gb major, C minor, Db major, and Eb minor – are voiced above a C7 harmony (E Bb and C pitches). By splitting these complex sonorities into two components - simple triads coupled with a tritone pair, Levine effectively isolates the chord defining 3rd-7th pitches from their extended counterparts. These upper structure voicings are also beneficial to performers looking for simplified ways to voice densely voiced sonorities.

In terms of an analytical framework, the highly chromatic sonorities resulting from these triadic additions create new voice leading paths through the dominant sonority that connects the II and I chord. (These new paths will find themselves as viable Score3 variations.) ML-4 shows some uniquely voiced II-V-I progressions using V-chord upper structures supported by 4th based LH dyads. In the first measure of ML-4 the “V” G7b9 chord is voiced with a 3rd-7th dyad in the left hand with a second inversion E major triad in the right hand. (The voicing actually suggests a G13b9 chord, but is labeled as a G7b9 chord in Levine's text.) The voice leading occurs as follows (the dark/light shading highlights the descending/ascending voice leading respectively):

⁴⁹ Based on personal experience – via word of mouth and talking to jazz performers and scholars – this seems to be the case.

Dm7		G7b9		C6/9	
				3	1
-----	-----	-----	-----	-----	-----
G	11	B			
D	1	F			

Table 20 – Voice leading in a II-V-I progression in C major using an *upper structure* dominant sonority

In this example, *all* the voices move. The lack of common tone retention between chords contrasts the typical II-V-I rootless voicing voice leading where three tones are held between the II-V chord movement and one tone is held between the V-I resolution. This example also presents voice leading connections between chords voiced by a different number of sonorities: the G7b9 is voiced with two 3rd's [B]. This difference in number of pitch tones results in voices conjoining and splitting: the [C and G] of the Dm7 chord conjoin to the [B] of the G7b9, then the [B] splits to the [C and A] of the C6/9.

Also to note in this example, all the 7th sonorities resolve downward to the 3rd of the following chord. This follows the typical voice leading tendency for the 7th to transfer to the 3rd (7→3). The 3rd, though, does not follow accordingly. Instead the 3rd either descends to the 13th/6th or ascends to the root of the following chord. This type of derivation from the typical resolution, as well as the voice conjoining and splitting detailed above, will become part of the voice leading criteria considered in the analytical framework being derived in this thesis.

In the final example, ML-5, Levine touches on the near non-existent role of diminished chords in jazz: they are typically only used as passing chords⁵⁰. The example outlines how to melodically connect inversions of select 4-note sonorities (major 6th, minor 6th, minor 7th, and dominant 7th) by alternating the inversions with diminished seven chords. Although seemingly unrelated to variations on II-V-I progressions, especially when taking into account the minimal impact of inversion on voice movement, the example reinforces the diminished sevenths function as a passing chord. Also, if a Score2 harmonic realization includes a diminished chord in passing, the voices of the following chord will hold more weight in a voice leading analysis.

David Baker (tonal)

In the final “treatise” *Jazz Improvisation*, Baker examines substitutions and proposes a categorization system for distinguishing basic resolution types. In terms of substitutions, four types are presented in DB-1-2: three substitutions based on minor third relations, and a fourth based on a predetermined formula. In DB-1, the three substitutions based on II-V’s related through minor thirds are outlined. These substitution, in essence, are transpositions of the II-V figure beginning on pitches +/- a minor third. Relating to the Dm7 – the II in a C major II-V progression – Baker proposes comparable substitutions of II-V’s beginning on minor seven “II” chords with [D F Ab B] roots. The first two substitutions (resulting in an [Fm7 Bb7 → IV bVII] and an [Abm7 Db7 → tritone substitution]) have all ready been discussed in section 1.1.2. The third substitution results in a II-V in the relative minor key. Substitutions based in third

⁵⁰ It should be noted that diminished seventh sonorities exist as the top portion of 7b9 chords [3 5 b7 b9], but here they would not be considered as a diminished chords, rather as a dominant rootless voicing.

relations such as this, result in many voices (or chord tones) to be shared. Consider the voice leading connection of the following substitution down a minor third (to the relative minor):

Dm7 (II of C major)		Bm7b5 (II of A minor)		G9 (no root) (V or C major)		E7b9 (no root) (V or A minor)	
C	7	B		B			
A	5	A	7	A	9	G#	3
F		F		F			
D	1	D	3	D	5	D	7

Table 21 – Common Tone Retention in II-V Relative Minor Substitution

Although some liberties are taken with the inclusion of certain chord tones – in particular the b5 and b9 for the minor II-V voicing, and the 9th for the G7- the example highlights the near complete overlap of the pitches in this substitution. The only voices that move are the [C] to the [B] and the [A] to the [G#] – in both of these cases the 7th from the “II” chord resolves downward to its respective “V”. Otherwise all voices remain common tones. It is also interesting to note the overall third relation of the chords [E-G-B-D] and subsequently the third relation of the changing sonorities for each respective pitch. For example, the pitch [D] is a respective root, 3rd, 5th, and 7th for each of the chords, and the pitch [F] is a respective 3rd, b5th, 7th, and b9th for each of its chords.

For the fourth substitution type in DB-2, Baker outlines the “Coltrane Changes” – a turnaround substitution where a string of V-I progressions in major third relations are sandwiched between the original II and I chords. In the case of a II-V-I in C major, V-I’s in the key of Ab major, E major and finally C major follow the initial II [Dm7]. This substituted progression has a unique aural flavour that when played, relates back to Coltrane, who experimented with major third relations, as we noted previously in Section 1.1.2.1 in connection with *Giant Steps* (Table 7). In terms of voice leading, the delayed

resolution of the original V-I from the II creates an altered path connecting the proximal voices. Tracing this new path explicitly highlights a change in harmonic style on the part of the performer. This determination will now be explored through a developed categorization system that takes its lead from Baker's breakdown of resolution types.

Analytical Framework: Tonal Voice Leading Resolutions

Baker proposes four types of distinct resolutions in DB-3a-d: a regular resolution (RR), parallel resolution (PR), divergent resolution (DR), and a [#9#5] resolution⁵¹. The following table accounts for these resolutions types:

Resolution Type	Basic Voice Leading (II→V)
1) RR	One voice descends
2) PR	Two voices move in parallel
3) DR	Two voices move in contrary motion
4) #9#5	Three voices move to a V7#9#5 sonority

Table 22 – Summary of Baker's II-V Voice Leading Types

The unique voice leading that occurs as the chord progression moves from the "II" chord to the "V" chord will be used to categorize the type of approach that an improviser uses to realize a II-V or II-V-I progression. Baker does not track all the voices in the resolution categorization process, rather he limits the tracking of voice movement to a few select chord tones, primarily the 3rd, 7th, 5th and 9th. It should be noted that of the four voices being tracked, the 3rd of the II chord does not move, while the motion of the 9th, 7th and 5th become the determinates. The following set of tables expand on Table 22 and the examples in DB-4a-d by outlining the voice leading that defines the resolution type – in Tables 23a-d the shading highlights the voices in the II and V chord only:

⁵¹ Baker outlines these particular four II-V-I progressions because they are the most basic and commonly used. His intentions are likely more demonstrative for educational purposes rather than looking towards some kind of voice leading analytical framework – which is what his model will be borrowed here.

1) Regular Resolution						Voice Leading	
Dm9 - II		G13 - V		CM7 - I		Moving voice: the 7th of the II falls a semi-tone to the 3rd of the V Held voices (3): the 3rd, 5th, and 9th of the II become the 7th, 9th, and 13th of the V respectively	
E	9	E	13	D	9		
C	7	B	3	B	7		
A	5	A	9	G	5		
F	3	F	7	E	3		
D	1	G	1	C	1		

Table 23a – Regular Resolution

2) Parallel Resolution						Voice Leading	
Dm9 - II		G13b9 - V		CM7 - I		Moving voices (2): the 7th and 5th of the II fall in parallel semi-tones to the 3rd and flat-9th of the V respectively. Held voices (2): the 3rd and 9th of the II become the 7th and 13th of the V respectively	
E	9	E	13	D	9		
C	7	B	3	B	7		
A	5	A ^b	b9	G	5		
F	3	F	7	E	3		
D	1	G	1	C	1		

Table 23b – Parallel Resolution

3) Divergent Resolution						Voice Leading	
Dm9 - II		G13b9b5 - V		CM7 - I		Moving voices (2): the 7th and 5th of the II move in contrary motion by semi-tone to the flat-5th (rise) and flat-9th (fall) of the V respectively. Held voices (2): the 3rd and 9th of the II become the 7th and 13th of the V respectively	
E	9	E	13	D	9		
C	7	D ^b	b5	B	7		
A	5	A ^b	b9	G	5		
F	3	F	7	E	3		
D	1	G	1	C	1		

Table 23c – Divergent Resolution

4) [#9 #5] Resolution						Voice Leading	
Dm9 - II		G13#9#5 - V		CM7 - I		Moving voices (3): the 9th, 7th, and 5th of the II move in contrary motion by semi-tone to the sharp-5th (fall), 3rd (fall), and sharp-9th (rise) of the V respectively. Held voice: the 3rd of the II becomes the 7th of the V	
E	9	D [#]	#5	D	9		
C	7	B	3	B	7		
A	5	A [#]	#9	G	5		
F	3	F	7	E	3		
D	1	G	1	C	1		

Table 23d – [#9 #5] Resolution

The simplicity of Baker's categorization of resolution types makes it a suitable model for inclusion within an analytical framework. Consider, though, the following problems with Baker's approach. First, each voice in a vertical sonority can be tracked to horizontally to the next vertical sonority in one of five ways: the voice can retain its pitch (common tone), ascend, descend, split to two voices, or conjoin with another voice. Baker does not make explicit these voice movement types, even though they are implicit in his categorization. Secondly, the model does not accommodate 1) sonorities containing a different number of voices – i.e. where voices need to split or conjoin, and 2) resolutions where three or more voices change, beyond the [9#5] resolution.

To make the categorization process more all-encompassing a more generic criterion needs to be applied – the proposed alteration will accommodate II-V-I progressions with varying degrees of harmonic alterations and extensions. The resolution types will be re-categorized as follows, borrowing three of the four titles from Baker. The following resolution types, called “Dunn resolution types”, will be referred to by their R1, R2, R3, and R4 abbreviations for the duration of the paper⁵²:

- 1) Regular Resolution (R1) – **one** voice changes pitch (7th → 3rd) and **all** other voices hold their pitch as a common tone.
- 2) Parallel Resolution (R2) – **two or more** voices move in similar motion, either descending (most common) or ascending.
- 3) Divergent Resolution (R3) – **two** voices move in contrary motion.
- 4) Multiple Voice Resolution (R4) – **three or more** voices move in contrasting motion (e.g. 2 ascend–1 descends, 1 ascends–2 descend, etc.) and may or may not split or conjoin.

⁵² Both Tonal and Modal Categories (to be derived in the following section) can be found in Appendix E.

In R2 and R4, the parallel resolution type as presented in Baker was expanded to include two or more voices moving in parallel, and the [#9#5] was altered to accommodate all other extended harmonic sonorities. The following table compares Baker's four original resolution types with the newly derived "Dunn" resolution types:

Resolution Types			Basic Voice Leading
1	Baker	RR – Regular	One voice descends
	Dunn	R1 – Regular	One voice changes pitch
2	Baker	PR – Parallel	Two voices move in parallel
	Dunn	R2 – Parallel	Two or more voices move in parallel
3	Baker	DR – Divergent	Two voices move in contrary motion
	Dunn	R3 – Divergent	Two voices move in contrary motion
4	Baker	#9#5	Three voices move to a V7#9#5 sonority
	Dunn	R4 – Multiple Voice	Three or more voices move in contrary motion

Table 24 – Comparison of Baker's and Dunn's Resolution Types

As according to Baker's usage, these "Dunn rules" will apply to the voice leading from the [II → V]. In instances where there is no "II" chord in the II-V-I tonal figure then the voice leading from the [V → I] will be analyzed instead. The following two examples present for examples of II-V and V-I progressions and their respective voice leading (the roots are omitted from the voice leading analysis). These examples demonstrate each of the four resolution types (R1, R2, R3, and R4):

R1 - Regular Resolution R2 - Parallel Resolution R3 - Divergent Resolution R4 - Mixed Voice Resolution

Am9 D13 C13b9 FM9b Dm7b5 G7b9b13 Cm11 Falt

Example 6 – II-V and V-I examples of 4 resolution types

Am9		D13		C13b9		FM6/9		Dm7b5		G7b9b13		Cm11		Falt	
9	B	13	B	b9	Db	5	C	1	D	b13	Fb	11	F	b9	F#
7	G	3	F#	13	A	9	G	7	C	3	B	9	D	6	D
5	E	9	E	3	E	6	D	b5	Ab	b9	Ab	7	Bb	3-b5	A-B
3	C	7	C	7	Bb	3	A	3	F	7	F	3	Eb	7	Eb
R1				R2				R3				R4			

Table 25 – Voice leading breakdown of Example 6's four resolution types

Referring to Figure 6 and Table 25, the ties are used to show retained pitches and the shaded boxed highlight the pitches that move, respectively. In the Am9→D13 II-V progression only one pitch moves: the [G] (7th of Am9) to the [F#] (3rd of D13), thus an R1 categorization. In the second progression a II chord is not included in the II-V-I figure, therefore the voice leading analysis shifts to the V-I portion. In the C13b9→FM6/9 all four voices descend in parallel motion: b9th→5th, 13th→9th, 3rd→6th, and 7th→3rd. Since all the voices move in the same direction, the progression is categorized as an R2 type resolution. It should be noted if any of the voices had resolved upwards, then the resolution would be categorized as an R4 type resolution. In the third progression, a II-V in C minor, only two voices move: the root [D] ascends to the [Eb] (b13th of G7b9b13) and the [C] (7th of Dm7b5) descends to the [B] (3rd of G7b9b13). Since the voices move in contrary motion, the progression is categorized as an R3 type resolution. In the final progression, a II-V in Bb major, two voices change: the [F] (11th of Cm11) rises to the [F# or Gb] (b9th of Falt) and the [Bb] splits to become the [A] (3rd of Falt) and the [B] natural (b5 of Falt). An R4 categorization encompasses both the split and the resulting three pitch changes.

There are two harmonic possibilities likely to occur within a 4-measure tonal passage that require qualification for how to approach to voice leading analysis: 1) the

voice leading in passages containing multiple II-V-I, II-V, or V-I tonal figures – for example, any of the 4-measure segments in Coltrane’s *Moment’s Notice* that touch on multiple tonalities; and 2) the inclusion of an isolated sonority that is neither part of a V-I, II-V, or V-I grouping nor as a substitution of one of the II-V-I components – for example the Ab major sonority in mm.5-7 [Cm7 | AbM9#11 | Cm7] of Hancock’s *Dolphin Dance*. In both cases the connecting voice leading will be categorized according to its R1-4 resolution type. For example, in the first 4-measures of *Moment’s Notice* II-V and II-V-I figures occur successively in D major, Eb major, and Gb major. The following table outlines the type of voice leading resolutions that results during these tonal connections when using basic rootless voicings (either 3-5-7-9 voicings or 7-9-3-5 voicings) for each sonority:

Em7		A7		Fm7		Bb7		EbM7		Abm7		Db7	
F#	9	F#	13	G	9	G	13	F	9	Eb	5	Eb	9
D	7	C#	3	Eb	7	D	3	D	7	C	3	C	7
B	5	B	9	C	5	C	9	Bb	5	Bb	9	Bb	13
G	3	G	7	Ab	3	Ab	7	G	3	Gb	7	F	3
E	1	A	1	F	1	Bb	1	Eb	1	Ab	1	Db	1
R1		→→→→				R1		→→→→				R1	
		R2 – four voices ascend in parallel						R2 – three voices descend in parallel					

Table 26– Voice leading for successive II-V-I patterns

Parallel voice leading occurs between the chords linking tonal regions. Between the A7→Fm7 chords, linking D major and Eb major, four voices ascend in parallel, thus the categorization of an R2 type resolution. Similar parallel motion occurs between the EbM7→Abm7 chords, linking Eb major and Gb major. In this case three voices descend and the fourth remains as a common tone. Again the connection is categorized as an R2 type resolution.

In terms of the second possibility, where the progression includes a non-II-V-I chord, the voice leading will be categorized according to the same resolution types. Using the *Dolphin Dance* passage in mm. 5-7 as an example the voice leading occurs as follows, again using basic rootless voicing sonorities:

Cm7		AbM9#11		Cm7	
D	9	C	3	D	9
Bb	7	Bb	9	Bb	7
G	5	G	7	G	5
Eb	3	D	#11	Eb	3
C	1	Ab	1	C	1
→→→→		→→→→			
R2 – two voices descend in parallel		R2 – two voices ascend in parallel			

Table 27 – Voice leading for successive non-II-V-I related harmonies in a tonal setting

Like the previous example, parallel resolution occurs between both of the non-II-V-I related chords. It should be noted that in the above example the [D] resolves downward to the [C] instead of becoming the #11 in the AbM9#11. The chosen resolution results in smoother voice leading: if the [D] were to hold then the [Eb] would need to resolve down a minor third to the [C]. In either case parallel voice leading occurs.

Another consideration for this passage is whether it retains a tonal quality rather than suggesting some kind of C modality. Two reasons suggest a stronger tonal quality: 1) the passage is preceded by a II-V in C minor; and 2) the lack of a C pedal for the Ab sonority disrupts the continuity of a [C] bass throughout the passage, a continuity much needed to strengthen the argument towards modal consideration. Therefore the non-II-V-I based segment is still considered a tonal passage.

2.2. Modal Consideration

The discussion will begin by returning to each of the authors' texts on modal progressions in jazz. Similarly to how the authors present variations on how to approach a tonal II-V-I progression, they present variations on how to harmonize within a modal setting. Recall that modal settings are much less constrained harmonically than tonal settings. Prescribing harmonic realizations to this much freer harmonic setting becomes much more difficult than prescribing tonal realizations. The authors inherently address this difficulty by prescribing much more general harmonic guidelines in their texts: these guidelines are typically more vague and are less practical than their tonal counterparts.

When introducing the quality of modes used in modal jazz, Mark Levine states that nearly all the available modes can be reduced to a combination of pitches taken from one of only five scale types – major, melodic minor, pentatonic/blues scale, diminished (or octatonic), and whole-tone⁵³. Most chordal sonorities can be modally set within one of these scales' harmonic make-up. Appendix D summarizes the modal characteristics of these five scales and will be used as a reference for the quality of mode being projected within a particular modal passage. For example, G:M-Mode IV refers to a G Lydian scale [G A B C# D E F#] and Ab: MM-Mode VII refers to an Ab Altered scale [Ab A B C D E Gb]. In terms of a modal setting, this array of modes compares to the array of chordal sonorities possible within a tonal setting. The connecting pitches within successive modal areas will be tracked in a similar manner to the connecting chord tones within successive harmonic sonorities.

⁵³ Levine (1995)

Before detailing how a comparable modal analytical framework will be used, a brief discussion on comparative harmonic sonorities in tonal and modal settings. One of the main differences in harmonic settings is the way in which the chords are voiced. In tonal settings chords are stacked primarily through stacked thirds (i.e. Root-3rd-5th-7th-9th-11th-13th). In modal settings harmonic sonorities often distinguish themselves through chordal sonorities stacked primarily in fourth intervals. Each of the above authors makes reference to this altered 4th-based sonority in their “treatise”.

Another main difference that distinguishes the two types of settings is the way in which the respective tonalities and modalities are projected. In a tonal setting, the tonality is projected through the some combination of the II-V-I progression. Thus, each chord is considered to have a functional role and must be played sequentially to fulfill its function. In a modal setting, the modality is projected not through any specifically functioning string of chords, but through a grouping of sonorities that collectively articulate the pitches of a particular mode. Contrary to the functionality and necessary ordering of the chords in a tonal setting, the chords in a modal setting hold no specific function, nor is it necessary to order them. Instead, chords in a modal setting will be considered as subsets of a particular mode. Through their grouping the subsets will combine to form complete sets, thus the projected mode.

The four authors’ treatises will now be re-considered according their descriptions of modal harmony. The examples in Appendix B will address both the 4th-based chord construction and the grouping of subsets inherent in modal harmonization.

Jerry Coker (modal)

In JC-6a-c, Jerry Coker outlines the three most common types of 4th-based modal sonority: the dominant suspended fourth (7sus4), quartal voicings⁵⁴, and the “So What” voicing. Referring to JC-6a, a 7sus4 ascending fourth interval occurs between the root, the 4th, and the 7th. In a modal setting there is no necessary or functional resolution of either the dominant chord tone 7th or of the dominant chord to a “I” chord. The 7sus4 expands naturally into a bVII/I sonority⁵⁵ – refer to JC-6b. Both the C7sus4 in JC-6a, comprised of pitches [C F Bb] and the Bb/C in JC-b, comprised of pitches [C F Bb D] allude to many possible C-based⁵⁶ modal settings. For example:

C: M-Mode V [C D E F G A Bb]
 C: Mode VI [C D Eb F G Ab Bb]
 C: M-Mode II [C D Eb F G A Bb]
 C: MM-Mode V [C D E F G Ab Bb]

As a stand alone chords Bb/C or C7sus4 do not project a distinct mode, therefore a modal determination cannot be accurately made. Other chords would be required to affirm which particular model setting these sonorities are subsets of.

The next two groups of modal voicings in Coker’s text - quartal voicings and the “So What” voicing, in examples JC-6c and JC-6d respectively, aptly demonstrate an affirmed modal setting. In both of these examples, the sum of the pitches touched on in the group of chords project D: M-Mode II [D E F G A B C – Dorian].

⁵⁴ Quartal voicings are also examined by jazz scholar Paul Rinzler in his 1999 McCoy Tyner article.

⁵⁵ “Slash notation” (x/y) is used in jazz and popular music to designate the chord (x) and the bass (y).

⁵⁶ The C root note is strong enough to assert itself as the modal tonic in whichever distinct mode were to become affirmed. By stating a specific root, the number of possible modes becomes greatly limited. For example, one mode suggested by C7sus4 is C Mixolydian. If a root were of no concern, then F Ionian, G Dorian, A Phrygian, Bb Lydian D Aeolian, and E Locrian would also be applicable, as all of these modes contain [C D E F G A Bb C].

A quartal voicing refers to a harmonic sonority of three or more notes built with ascending 4th intervals⁵⁷. Taken as a group, the array of tri-chords presented in JC-6c account for all the notes of D Dorian at least once. Not all seven listed tri-chords would be required to affirm D Dorian, only those that collectively outline all the pitches of D Dorian. In a D modal passage, typically labeled with a Dm7⁵⁸, combinations of quartal voicings would be required to either clarify the [D F A C] chord tones (1 3 5 7 chord degrees) or the D Dorian modal setting. Combinations such as the following would suffice in doing so: D quartal [D G C] + E quartal [E A D] + F quartal [F B E], or D quartal [D G C] + G quartal [G C F] + B quartal [B E A]. It should be stated that quartal voicings are not limited to perfect 4th intervals: note that two of the stackings in JC-6c contain an augmented 4th interval. The following table outlines how these quartal voicings articulate D Dorian:

D Dorian [D E F G A B C]		
Quartal Voicing		Successive Ascending Intervals
Pitches in D Dorian	Pitches in Dorian Setting	
G C F	4 th 7 th 3 rd	4 th 4 th
A D G	5 th Root 4 th	4 th 4 th
B E A	6 th 2 nd 5 th	4 th 4 th
C F B	7 th 3 rd 6 th	4 th aug4 th
D G C	Root 4 th 7 th	4 th 4 th
E A D	2 nd 5 th Root	4 th 4 th
F B E	3 rd 6 th 2 nd	aug4 th 4 th

Table 28 – An example of a group of quartal sonorities outlining D Dorian

⁵⁷ The 7sus4 in JC-6a is also a quartal voicing. The C7sus4 designator though, does not necessarily suggest any other quartal chords beyond the [C F Bb] trichord that accounts for all the pitches in the chord symbol.

⁵⁸ The D modal passages in both Davis' *So What* and Coltrane's *Impressions* are labeled with only a Dm7 designator.

In JC-6d, the basic structure of the “So What” voicing is outlined: four 4th intervals ascending with a third on top. The unique voicing was first used by Bill Evans as an accompaniment figure on Miles Davis’ *So What*⁵⁹; the voicing is appropriately named “So What”, based on this recording. Bill Evans realizes the Dm7 modal setting with two oscillating “So What” sonorities (refer to JC-6d). The two resulting chords, [Em11 → Dm11] touch on each of the notes in the D Dorian mode, thus affirming D Dorian. Table 29 outlines the parallel voice leading of these two chords:

“So What” Voicing – D Dorian		
Em11	Dm11	Pitches in D Dorian Setting (all scale pitches 1-7 touched on)
B	A	6→5
G	F	4→3
D	C	1→7
A	G	5→4
E	D	2→1

Table 29 – Bill Evans “So What” voicing

These oscillating sonorities touch on all seven pitches of D Dorian, with doubling occurring on the 1st, 4th and 5th pitches: [1 1 2 3 4 4 5 5 6 7]. During the *So What* progression, the mode shifts to Eb Dorian after 16-measures of D Dorian. In the recording, Evans shifts the oscillating figure up half a step [Fm11 – F Bb Eb Ab C – to Ebm11 – Eb Ab Db Gb Bb], thus projecting Eb Dorian and maintaining continuity in his accompaniment.

⁵⁹ *So What* is the first track on Davis’s *Kind of Blue* 1959 album.

Dan Haerle (modal)

In DH-4, Dan Haerle outlines ascending quartal tri-chords and “So What” voicings built on each scale degree of D Dorian⁶⁰ in much the same manner as outlined by Coker. In DH-5 he presents suspended dominant sonorities again similar to those Coker presented. It should be noted that Haerle does not use slash notation in his labeling.

Mark Levine

Mark Levine extends the sus chords in ML-6 and ML-7 through various quartal and “So What” permutations. In all these examples some form of the major scale mode – either as a Dorian, Mixolydian, or Ionian – is affirmed by grouping two or more successive quartal sonorities.

David Baker

David Baker also references the quintessential “So What” modal voicing and an array of 4th based patterns (not included in Appendix C so as to avoid redundancy). Included in Appendix C are some of Baker’s bitonal modal realizations. DB-4a presents four slash chord / bitonalities⁶¹ and their related scale. For each example, AbM7#5/Bb, GbM7#5, C/Ab, and E/G, a scale containing the notes of both chords is given. For example, an AbM7#5 contains the pitches [Ab C E G] and Bb root triad contains pitches [Bb D F]; an F ascending melodic minor scale [F G Ab Bb C D E] accommodates both

⁶⁰ Note: D Dorian seems to be the quintessential mode for the modal discussions.

⁶¹ Baker uses the slash notation, typically reserved for chord/bass designations, to express bitonal relations. Bitonal relationships are usually expressed in a fraction-based presentation: $\frac{x}{y}$ instead of x/y.

of these chords. If the “/Bb” is considered only as a pedal, a scale containing pitches [Ab Bb C E G] would still be required to adequately accommodate the AbM7#5/Bb chord. From this consideration, both an F melodic minor and an F harmonic minor scale [F G Ab Bb C Db E] could be suitably paired. In DB-4b Baker extends the bitonal chord-scale pairing to constructing scales. In these examples, partial major scales, either as tetrachords or pentachords are connected. The resulting scale reflects both chords, though not wholly: only the root-3rd or the root-5th of the labeled triads appear in the constructed scale. Baker’s bitonal pairings, in particular the consideration of the bottom designator as either a chord or a root pedal, will be considered when choosing accommodating scales for modal or dual modal passages in Part III.

Analytical Framework: Modal Voice Leading Criteria

The foundation that these authors lay through these examples will now supply the resources through which to build the modal component of the analytical framework for voice leading analysis. Appendix D provides the backbone reference while the subsequent examples from Appendix C will provide the resource material for the examples. Lets reconsider the 8-measure passage from Hancock’s *One Finger Snap*. Recall in Table 10b that a modal shift occurs from Eb: M-Mode V (Mixolydian) to Eb: M-Mode II (Dorian). From a voice leading perspective the voice connection occurs as follows in Table 30:

Eb: M-Mode V		Eb: M-Mode II	
Db	b7	Db	b7
C	6	C	6
Bb	5	Bb	5
Ab	4	Ab	4
G	3	Gb	b3
F	2	F	2
Eb	1	Eb	1

Table 30 – Voice Connection from Mixolydian to Dorian

It can be said that the voice leading from a M-Mode V to a M-Mode II results in one voice descending. This modal shift resulting in only one change in pitch compares to a tonal R1 Regular Resolution and constitutes the first type of voice leading between successive modes.

From this example it could also be said that during this modal shift no change in scale family occurred. Therefore, successive modes will always follow one of two paths: either through a path of modes in the same family or a change in modal family will occur. For the first, the modes will stay within either of the M, MM, P5, DIM, or WT modal families: for example a shift from Dorian → Mixolydian → Lydian. For the second type, the modes will change families: for example a shift in mode Dorian → Lydian Dominant → DIM-Mode I. In terms of a voice leading modal framework a shift in mode will only raise concern when the a shift occurs between families of different number of pitches: i.e. a shift between a Dorian mode (7 pitches) and an Diminished mode (8 pitches) . This occurrence compares to the conjoining / splitting that occurs in a tonal R4 type resolution. Now lets map out other examples of modal shifts and see how they compare to the other tonal resolutions.

Recall the 16-measure passage from Hancock's *Speak Like a Child* in Example 4.

This passage falls into a dual modal categorization. Along with a harmonic progression that descends chromatically on a large level (over the 16-measures), there is a chromatic shift in harmonic sonority occurring at the local level (from measure to measure). Table 31 outlines each harmonic sonority specified in Example 4 and the chord tones and the mode that each of these harmonies imply. The alternating shading highlights the changes in mode on a larger level. Although tracking the voice leading connections that occur on a larger scale reveal a particular harmonic perspective, the more subtle changes in mode and subsequent voice leading at the local level will be of particular interest. Furthermore, the quality of local level voice leading will constitute the bulk of the modal analytical framework. The succession of modes occurs as follows: Bb mode → Ab mode → G mode → Gb/F# mode → Eb mode.

Harmonic Label	Chord Tones	Implied Mode (pitches)	Implied Mode (label)
Bb13	Bb D F Ab G	Bb C D Eb F G Ab	Bb:M-Mode V
Bb7#5	Bb D F# Ab	Bb C D (Eb) F# Ab	Bb:WT-Mode I
Bbm9	Bb Db F Ab C	Bb C Db Eb F G Ab	Bb:M-Mode II
Eb13	Eb G Bb Db C	Eb F G Ab Bb C Db (Bb C Db Eb F G Ab)	Eb:M-Mode V (or Bb:M-Mode II)
Ab13sus	Ab Db Eb Gb F	Ab Bb C Db Eb F Gb	Ab:M-Mode V
Ab13b9	Ab C Eb Gb Bbb F	Ab Bbb B C D Eb F Gb	Ab:DIM-Mode I
Galt	G B D# F A# C#	G Ab A# B C# D# F	G:MM-Mode VII
GbM7#11	Gb Bb Db F C	Gb Ab Bb C Db Eb F	Gb:M-Mode IV
F#o7add9	F# A C E G#	F# G# A B C D E	F#:MM-Mode-VI
Eb9sus	Eb Ab Bb Db F	Eb F G Ab Bb C Db	Eb:M-Mode V
Eb13	Eb G Bb Db C	Eb F G Ab Bb C Db	Eb:M-Mode V
Ebm9	Eb Gb Bb Db F	Eb F Gb Ab Bb C Db	Eb:M-Mode II
D7#9	D F# A C E#	D Eb E# F# Ab A# C D Eb E# F# G# A B C	D:MM-Mode VII D:DIM-Mode I
(tr. sub. Ab13)	(Ab C Eb Gb F)	(Ab Bb C D Eb F Gb)	(or Ab:MM-Mode IV)

Table 31 – *Speak Like a Child* Modal Analysis

During the progression in Bb mode, the Bb7#5 sonority introduces a chromatic alteration that cannot be accommodated within either a Bb Mixolydian mode (implied by the Bb13) or a Bb Dorian mode (implied by the Bbm9). One possible mode suggested by the 7#5 sonority is the whole-tone mode. This six note whole-tone mode impacts the voice leading by forcing one of the voices to subsequently conjoin and then split. The voice leading for this possibility would occur as follows:

Scale Degree:	1	2	3	4	5	6	7
Bb13	Bb	C	D	Eb	F	G	Ab
Bb7#5	Bb	C	D	E	F#		Ab
Bbm9	Bb	C	Db	Eb	F	G	Ab

Table 32 – Voice leading for successive modes containing a different number of pitches

From the Bb:M-Mode V to the Bb7:WT-Mode I either the [F G] pitches would need to conjoin to the [F#] while the [Eb] ascends to the [E], or the [Eb F] pitches would need to conjoin to the [E] while the [G] descends to the [F#]. The voice leading would then reverse itself as the progression continues from the Bb7#5 → Bbm9. In either case, two voice leading connections take place: a conjoining/splitting voice and a chromatic ascent/descent. The modal shift that occurs from the Ab13sus → Ab13b9 follows similarly: the extra pitch in the Ab :DIM-Mode I causes a voice from the Ab:M-Mode V to split – in this case the [Bb] splits to [Bbb B] pitches, while a second voice [Dd] descends chromatically to the [D].

Let us consider in greater detail the relationship between modes containing a different number of pitches. In the above two examples, a partial overlap of common tones occurs. In the Bb modal passage [Bb C D Ab] pitches remain unaltered and in the

Ab modal passage [Ab C Eb F Gb] pitches remain the same. A complete overlap occurs when comparing the pentatonic scales to select modes in the MM and M families. For example, in a shift in mode from C:M-Mode IV [C D E F# G A B] to C:P5-Mode I [C D E G A] a complete overlap occurs: both modes contain [C D E G A] pitches. When facing this analytical predicament, instead of pitches conjoining or splitting, there are omitted pitches. For example, if pitches [C D E G A] are touched on in a select passage with a strong C bass, then a C:P5-Mode I will most accurately define the modality of the passage. If at any point though an F, F#, B, or Bb are added to the collection of pitches already sounding, a shift in mode to either C:M-Mode I [C D E F G A B], C:M-Mode IV [C D E F# G A B], C:M-Mode V [C D E F G A Bb], or C:MM-Mode IV [C D E F# G A Bb] will occur. Thus emerges a second category of voice leading type: voice leading occurring in successive modes containing a different number of pitches. A sub-category distinction also arises where either pitches are omitted/added or conjoined/split.

Continuing with the modal analysis of the *Speak Like a Child* excerpt, the GbM7#11 → F#o7add9 progression suggests a third category for voice leading in a modal setting: where multiple pitches change in successive modes containing the same number of pitches. In this example, the mode family switches from a major-scale based mode to a melodic minor-scale based mode. Both modes contain seven distinct pitches. The voice leading occurs as follows:

Scale Degree:	1	2	3	4	5	6	7
GbM7#11	Gb	Ab	Bb	C	Db	Eb	F
F#o7add9	F#	G#	A	B	C	D	E

Table 33 – Voice leading connection between Gb:M-Mode IV and F#:MM-Mode-VI

Five of the seven pitches shift downward by a semi-tone, changing drastically the modal quality of the Gb/F# mode. This voice leading type compares to R2, where 2+ voices move in parallel motion. Therefore, an emerging criteria for the third category for modal voice leading involves parallel motion in 2+ voices for successive modes containing the same number of pitches. This type of voice leading can occur in progressions where the modes change family type, as in the example above, or among the changes in modes from the same family. An example of the latter would be a switch from Ionian → Dorian – both the 3rd and 7th scale degrees would descend in parallel motion.

Another type of category three voice leading occurs when multiple voices move in contrary motion in successive modes containing the same number of pitches. Instead of all the voices moving in parallel motion, at least two voices move in contrary motion. An excerpt from *Dolphin Dance* will be used to demonstrate this sub-category of type three modal voice leading. The Bb modal progression from mm. 1-3 suggests a shift in mode. Refer to Table 34 on the following page for a breakdown of the chord-mode relationship of the passage. Tracking the voice leading from the DbM7/Eb → Bb7b9/Eb, the [C] moves down to the [Cb] while the [Db] moves upward to the [D]. These two voices move in contrary motion, thus distinguishing itself from the parallel motion that results in the previous example (Table 33).

Measure	Harmonic Label	Chord Tones	Implied Mode (pitches)	Implied Mode (label)
1	DbM7/Eb	Eb Db F Ab C	Eb F G Ab Bb C Db	Eb:M-Mode V
2	Bb7b9/Eb	Eb Bb D F Ab Cb	Eb F G Ab Bb Cb D ⁶²	Eb-Major / Harmonic Minor
3	Bb7b9sus/Eb	Eb Bb Eb F Ab Cb	Eb F G Ab Bb Cb D	Eb-Major / Harmonic Minor

Table 34 – The Implied modality of *Dolphin Dance*'s mm.1-3 passage

From these examples a categorization criteria for the voice leading in a modal setting fully emerges. The following criteria will constitute the modal component for the voice leading analytical framework. These criterion compares to the R1-R2-R3-R4 resolution types which constitute the tonal component for voice leading analytical framework. The M1, M2a, M2b, M3a, and M3b modal voice leading types will be reference throughout the rest of the thesis.

Modal Categories⁶³:

- 1) Closely related modes (M1): a change in mode occurs where only one pitch changes.

Successive modes can be from like or different family types, but must contain the same number of pitches

⁶² Note in Table 31, a DIM-Mode I is implied for the Ab13b9 harmony, whereas in this case a scale not included in the modal family types is proposed: an Eb major/harmonic minor. The Eb directly impacts this decision – as an Eb or scale degree four is not present in a Bb:DIM-Mode I – consider also Baker's bitonal chord-scale pairings. The inclusion of the major/harmonic minor scale is more for demonstrative purposes of the categorization type. Like any scale made up of a unique string of intervals, the major/harmonic minor does theoretically embody seven different modes. And although the major/harmonic minor accommodates this particular harmonic sonority, it does not come up as regularly in jazz texts in terms of its usage, thus its omission from Appendix D.

⁶³ The list of Tonal and Modal Categories can be found in Appendix E

- 2) Modes containing different number of pitches (M2a, M2b): inherent in this category is that a change in mode family must occur.
- a) The pitch content of successive modes partially overlap, where select pitches conjoin or split as the mode changes.
 - b) The pitch content of successive modes fully overlap, where select pitches are added or omitted as the mode changes.
- 3) More distantly related modes (M3a, M3b): a change in mode occurs where 2+ pitches change. Successive modes can be from like or different family types, but must contain the same number of pitches
- a) The voice leading occurs in parallel motion.
 - b) The voice leading occurs in contrary motion – in any combination of ascending or descending motion.

Part III: Deriving Score3 for Five *Dolphin Dance* Passages

This section presents an analytical breakdown of five 4-measure *Dolphin Dance* passages. The first two passages are harmonically situated within a tonal setting. The next two passages are representative of a dual-modal harmonic setting. And the final passage begins in a dual-modal setting and switches to a tonal setting in its final measure. The following table sums up the tonal and modal quality of these extracted segments:

Passage	Measures	Harmonic Type	Keys Touched On
#1	mm.5-8	Tonal	C minor, G major
#2	mm.9-12	Tonal	G major, Gb major, Eb major
#3	mm.17-20	Modal	G modal
#4	mm.31-34	Modal	E modal
#5	mm.1-4	Modal→Tonal	Eb modal, C minor

Table 35 – Harmonic Quality of five 4-measure passages from *Dolphin Dance*

A two-fold process will occur for each of these five passages. First, each passage will be assessed according to all the internal voice leading connections. Each change in harmony will be categorized according to its resolution type or its change in mode; this determined resolution will be used as the first example in the Score3, labeled as the *initially derived voicing*. Once these types are determined, three subsequent variations will then be derived that take into account the remaining voice leading criteria types outlined in Appendix B⁶⁴. For the tonal settings in passages 1, 2, and 5, progressions that exemplify each of the R1-R2-R3-R4 resolution types. Substitutions will be included in

⁶⁴ Again, it should be reiterated that there are endless harmonic permutations that could be used to exemplify the types of voice leading criteria; the given Score3 is by no means exhaustive.

the variations. For the modal settings in passages 3, 4, and 5, progressions based on each of the M1-M2a-M2b-M3a-M3b criterion will be proposed. Taken as a whole, the collection of variations, including the *initially derived voicing*, for each 4-measure passage constitute Score3. In Part IV, Score2 transcribed performances of these *Dolphin Dance* passages (by Bill Evans and Herbie Hancock) will be compared to the Score3 for each passage.

The voice leading choices will be based on the following criteria:

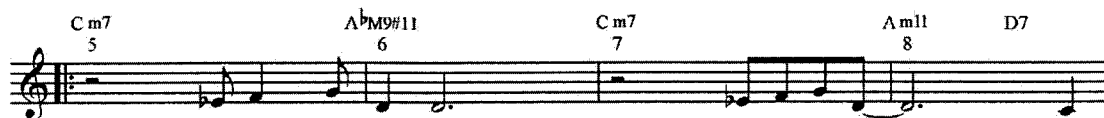
- 1) The voices will be connected as “tightly” (or smoothly) as possible (consider Schoenberg’s “law of the shortest path”).
- 2) The first sonority will be voiced as close to a [1 3 5 7 9] stacking as possible, pending the chord tones required as stipulated in the given harmony.
- 3) Select chord tones will be added, omitted, and doubled accordingly (consider criteria 1). For example: 9th’s, 11th’s, and 13th’s will be added according to the harmonic designation, the root will be doubled in four note chord sonorities, and the 5th will be omitted when necessary (typically when extensions are added).

The voice connection will be shaded as follows in the voice leading tables given for each of the five passages:

Descending (desc.)	Ascending (asc.)	Common Tone
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Table 36 – Shading reference for voice leading tables

3.1. Passage #1 (mm.5-8)



Example 7 – *Dolphin Dance* Passage #1

Passage #1 begins in C minor and ends with a II-V progression in G major that leads to its “I” on the downbeat of m.9. (refer to the above Example 7). Although the extraction of this 4-measure segment seemingly disrupts the forward motion voice leading in the II-V-I pattern, the passage reinforces its self-containment through the repeating melodic figure and lack of melodic motion during m. 6 and m. 8. From this perspective the V [D7] plays a dual role: first as part of the II-V [Am11 D7] that ends the 4-measure phrase, and second as part of the V-I [D7 GM7] that begins the following 4-measure phrase. The voice leading in Passage #1 flows through the two slightly varied harmonization of an identical melodic figure as follows:

Cm7		AbM9#11		Cm7		Am11		D7	
D			3	D	9	D	11	D	1
Bb	7	Bb	9	Bb	7	C	3	C	7
G	5	G	7	G	5	G			3
Eb			#11	Eb	3	E	5	E	9
C	1	Ab	1	C	1	A	1	D	1
→→→→		→→→→		→→→→		→→→→			
R2 – 2 voices		R2 – 2 voices		R2 – 2 voices		R1 – 1 voice			
desc. in parallel		asc. in parallel		asc. in parallel		descends			

Table 37 – Voice leading of Passage #1

Every voice changes pitch at least once over the 4-measure passage. In this basic voice leading configuration three R2 parallel resolutions and one R1 regular resolution

occurs. The harmonic interest results from the two harmonizations of the melodic [D] in the second and fourth measures. First, harmonized by an AbM9#11, the [D] becomes the #11. Since the AbM9#11 sonority requires an M9 [Bb], a 3rd [C], and a #11 [D], the Cm7 7th [Bb] can hold to become the required 9th, but both the [D] [Eb] from the Cm7 must descend rather than the [D] remaining a common tone and the [Eb] dropping three semitones to the [C]; this results in smoother voice leading, thus adhering to the first criteria. This voice leading predicament changes when an Am11 reharmonization occurs in the fourth measure. This time there is no necessary 9th [Bb or B] required in the Am11 sonority, therefore the [D] can hold to become the 11th and the Bb can voice lead upward to the necessary 3rd [C] of the Am11. These subtle changes in harmonization result in two types of R2 parallel resolution: descending voices leading to the AbM9#11 and ascending voices leading to the Am11.

3.2. Passage #2 (mm.9-12)



Example 8 – *Dolphin Dance* Passage #2

Passage #2 begins in G major and moves through two third related II-V patterns in Gb major and Eb major. Recall that these II-V's relate to C minor as substitutions, with the former as a tritone substitution ($\text{Abm7-Db7} \rightarrow \text{Dm7-G7}$) and the latter as a third related VI-bVII ($\text{Fm11-Bb7} \rightarrow \text{Dm11-G7}$). A harmonic third relation occurs from both m.10 to mm.11-12 and from mm.11-12 leading into the m.13 C minor harmony. The following table outlines these occurrences; the V [D7] (from m.8) of the GM7 downbeat is included in the analysis:

(D7)	GM7		Abm7		Db7		Fm11		Bb7		
B	13	A	9	Ab	1	Ab	5	Ab	3	Ab	7
F#	3	F#	7	Gb	7	F	3	F	1	F	5
E	9	D	5	Eb	5	Eb	9	Eb			3
C	7	B	3	Cb	3	Cb			11	Bb	1
D	1	G	1	Ab	1	Db	1	F	1	Bb	1
→→→→ →→→→ →→→→ →→→→ →→→→											
R2 – 3 voices R3 – 2 voices R1 – 1 voice R1 – 1 voice R1 – 1 voice											
descend in move in descends descends descends											
parallel contrary motion											

Table 38 – Voice leading of Passage #2

This passage exemplifies three distinct types of voice resolution: R1, R2, and R3. Most of the voice movement occurs in descending R1 resolutions, with the bulk of the

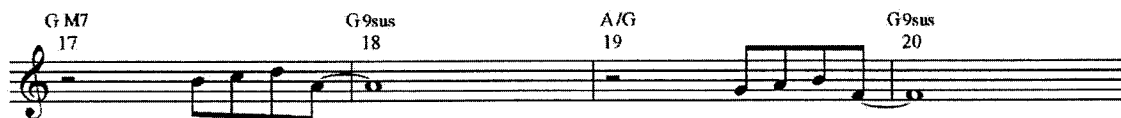
descending occurring in $7^{\text{th}} \rightarrow 3^{\text{rd}}$ movement. The lone instance of an ascending resolution occurs in the connecting voices from $\text{GM7} \rightarrow \text{Abm7}$. A near mapping of chord tones occurs ($3^{\text{rd}} \rightarrow 3^{\text{rd}}$, $5^{\text{th}} \rightarrow 5^{\text{th}}$, and $7^{\text{th}} \rightarrow 7^{\text{th}}$) where only the respective 5^{th} 's do not align; the change in respective 3^{rd} and 7^{th} major-minor polarities account for the common tone voice transfer.

In the case of the third related succession, from the $\text{Db7} \rightarrow \text{Fm11}$, only one voice changes pitch. The fact that three pitches [Ab F Eb] are shared between the two chords, reiterates the close proximity of the third related chords. Consider that if the F minor sonority were voiced with a b5 [F Ab Cb Eb], all the pitches would be common tones:

Db7		Fm7b5	
Ab	5	Ab	3
F	3	F	1
Eb	9	Eb	7
Cb	7	Cb	b5
Db	1	F	1
→→→→ All 4 upper voices hold			

Table 39 – Voice Leading of Alternate Resolution

3.3. Passage #3 (mm.17-20)



Example 9 – *Dolphin Dance* Passage #3

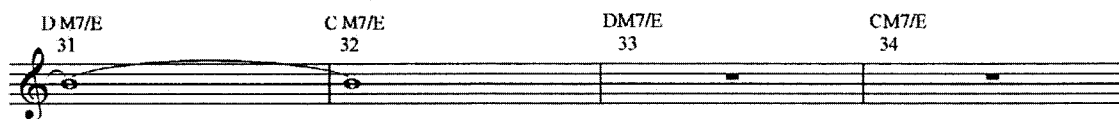
The first passage in a modal setting occurs in Passage #3. The 4-measure passage progresses through three distinct G modalities: G G:M-Mode I (Ionian), G:M-Mode V (Mixolydian), and G:MM-Mode IV (Lydian- Dominant), thus establishing itself as a dual mode passage. The GM7 in the first measure plays a dual harmonic role, acting as both the “I” chord, thus completing the II-V-I progression from the previous measure, and as the harmonic implicate of the G Ionian mode. The Ionian mode accommodates both harmonic perspectives. If for instance this passage was not preceded by a II-V figure, the stand alone GM7 would equally imply a G:M-Mode IV (Lydian – [G A B C# D E F#]). The presence of the preceding II-V [Am11 D7] progression, though, introduces a [C] chord tone into the voice leading connection that would negate the Lydian implication. The following table tracks the voice leading for the dual mode passage:

Harmonic Label		GM7	G9sus	A/G	G9sus
Chord Tones		G B D F#	G C D F A	G A C# E	G C D F A
Implied Mode (pitches)	7			F	F
	6	E	E	E	E
	5	D	D	D	D
	4	C	C	C#	
	3	B	B	B	B
	2	A	A	A	A
	1	G	G	G	G
Implied Mode (label)		G:M-Mode I Ionian	G:M-Mode V Mixolydian	G:MM-Mode IV Lydian-Dominant	G:M-Mode V Mixolydian
Change in Mode		→→→→ M1 – one pitch descends	→→→→ M1 – one pitch ascends	→→→→ M1 – one pitch descends	

Table 40 – Voice leading for Modes in Passage #3

Although three distinct modes occur over the passage, the chromatic changes in pitches are minimal. With only one pitch changing from mode to mode, an M1 categorization applies to each of these changes. Two modal families are represented in this passage, the major scale and the ascending minor scale families, and only two pitches, the 4th and 7th modal scale degrees, are impacted. As opposed to the 3rd and 7th chord tones that most accurately define the chordal sonorities in a tonal setting, the 4th and 7th mode pitches become the definers of this modal setting.

3.4. Passage #4 (mm. 31-34)



Example 10 – *Dolphin Dance* Passage #4

In Passage #4, an even seemingly simpler harmonic modal progression than that in Passage #3 occurs; the harmony alternates between an E Dorian and E Aeolian mode. It should be reiterated that the passage is discussed in terms of an E modality because of the [E] pedal. The following table outlines the simplest possible voice leading that can occur across this passage:

Harmonic Label		DM7/E	CM7/E	DM7/E	CM7/E
Chord Tones		E D F# A C#	E C E G B	E D F# A C#	E C E G B
Implied Mode (pitches)	7	D	D	D	D
	6		C	C#	
	5	B	B	B	B
	4	A	A	A	A
	3	G	G	G	G
	2	F#	F#	F#	F#
	1	E	E	E	E
Implied Mode (label)		E:M-Mode II Dorian	E:M-Mode VI Aeolian	E:M-Mode II Dorian	E:M-Mode VI Aeolian
Change in Mode		→→→→ M1 – one pitch descends		→→→→ M1 – one pitch ascends	

Table 41 – Voice leading for Modes in Passage #4

Recall that this passage stands alone in terms of related harmonic space (refer back to Part 1.2). Within an overall harmonic progression that emphasizes C minor, Eb major, G modal, and F modal, this passage, based on an [E] pedal, has no harmonic

precedence. With no obvious harmonic connection to any of the other tonal and modal areas, there is nothing to suggest that the given designators should imply one mode rather than another. Table 42 presents two other equally feasible modes that could accommodate the DM7/E and CM7/E harmonies:

Harmonic Label		DM7/E	CM7/E
Chord Tones		E D F# A C#	E C E G B
Implied Mode (pitches)	7	D	D
	6		
	5	B	B
	4	A	A
	3	G	
	2		F#
	1	E	E
Implied Mode (label)		E:M-Mode II (G) E :M-Mode V (G#)	E:M-Mode VI (F#) E:M-Mode III (F)
Change in Mode		→→→→ M3a – up to three pitches moving in parallel	

Table 42 – Other Modal Possibilities for Passage #4

In the above example, mode pitches 2 [F/F#] and 3 [G/G#] come into consideration. Since a II-V in B major precedes Passage #4, a mode that includes a [G#] could appropriately satisfy the harmonic motion leading into this passage. A DM7#4/E chord would explicate this motion. Another factor to consider is the sequential quality of the alternating M7 sonorities within the passage. Ignoring for a moment the [E] pedal, the harmonic progression descends by whole-tone. It would follow that the harmony projected by each chord would also descend fully by whole-tone (i.e. each chord would project the same mode). If this were the case, then a mode for the CM7 harmony would

need to include either an [F#], thus paralleling a D:M-Mode IV for the DM7#4, or an [F], thus paralleling a D:M-Mode I for the DM7. The following table highlights this parallel/sequential possibility:

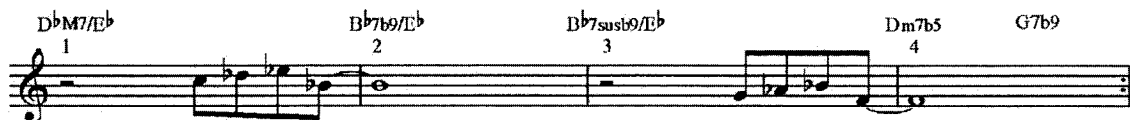
Harmonic Label		DM7/E		CM7/E	DM7/E		CM7/E
Implied Mode (Pitches)	7	C#	→→	B	C#	→→	B
	6	B	All	A	B	All	A
	5	A	voices	G	A	voices	G
	4	G#	descend	F#	G	descend	F
	3	F#	by full	E	F#	by full	E
	2	E	tone	D	E	tone	D
	1	D	→→	C	D	→→	C
Implied Mode (D/C label)		D:M-Mode IV		C:M-Mode IV	D:M-Mode I		C:M-Mode I
Implied Mode (E label)		E:M-Mode V		E:M-Mode VI	E:M-Mode II		E:M-Mode III
Change in Mode		→→→→ M3a – two ⁶⁵ pitches (C#G#) descend in parallel			→→→→ M3a – two pitches (C#F#) descend in parallel		

Table 43 – Voice Leading for Modes related through sequence

By connecting the sequential chord progression through modes of the same quality, the voices connect (as expected) through parallel motion. The common D/C label accounts for this parallel motion. In terms of an E mode, though, these two possibilities result in E Mixolydian → E Aeolian and E Dorian → E Phrygian respectively. Furthermore, two pitches change during both of these possibilities compared to the one pitch (Mode degree 6: [C/C#]) in the initial example, thus these possibilities do not represent the tightest possible voice leading between the two given harmonies. These possibilities, instead, will become part of the collected Score3 variations.

⁶⁵ Arguably all seven pitches descend in parallel as the mode descends in sequence – this is the perspective that the table presents. In terms of tight voice leading, though, only two voices actually change pitch. In either perspective an M3a voice leading type accounts for the parallel motion.

3.5. Passage #5 (mm. 1-4)



Example 11 – *Dolphin Dance* Passage #5

The sequential quality present in Passage #4 – i.e. the alternating DM7/E and CM7/E – carries into the first measure of Passage #5, modulated down a half step beginning with a DbM7/Eb. Although the sequence does not continue beyond the first measure, the modulated [Eb] pedal continues for three measures. These first three measures constitute the modal portion of the passage, designated as a dual Eb modal setting. The final measure switches harmonic quality to a tonal II-V progression in C minor that leads back into Passage #1. Table 44 (below) outlines the voice leading that occurs during the harmonically rich Passage #5.

Although the 4-measure passage encompasses both a dual modal setting and a tonal progression, there are minimal changes in pitch occurring in the voice leading. In the modal portion only two pitches are affected: the 6th and b7th pitches of the DbM7/Eb M-Mode V move in contrary motion to the b6th and 7th pitches of the Bb7b9/Eb Major / Harmonic Minor mode. Pitches 1-5 remain as common tones during this change. An M3b label accounts for this contrary motion.

Harmonic Label	DbM7/Eb		Bb7b9/Eb		Bb7b9sus/Eb		Dm7 b5		G7b9		
Chord Tones	Eb Db F Ab C		Eb Bb D F Ab Cb		Eb Bb Eb F Ab Cb						
Implied Mode (pitches) /	7	Db	D		D		D	1	D	5	
	6				Cb		C			3	
	5	Bb	Bb		Bb						
	4	Ab	Ab		Ab		Ab	b5	Ab	b9	
Chord Tones	3	G	G		G						
	2	F	F		F		F	3	F	7	
	1	Eb	Eb		Eb		D	1	G	1	
Implied Mode (label)	Eb:M-Mode V		Eb-Major / Harmonic Minor		Eb-Major / Harmonic Minor						
Change in Mode / Resolution Type	→→→→ M3b – two pitches move in contrary motion		→→→→ (same mode)		→→→→ M2a / R1 one pitch ascends		→→→→ R1 - one pitch descends				

Table 44 – Voice/Pitch Leading of Passage #5

From the modal setting to the tonal setting, across mm.3-4, two types of voice leading occur: both an M2a and an R1 category. The M2a accounts for the [Cb→C] change in pitch and the different number of pitches between the Eb Major / Harmonic Minor mode and the chord tones of the Dm7b5 sonority. From this modal perspective, the [D F Ab C] chord tones of Dm7b5 are considered as pitches of a mode: i.e. as some kind of D tetrachord. Another possibility would be to consider a scale that includes the four chord tones of Dm7b5: i.e. a D:M-Mode VII (Locrian). In this example (refer Table 45 below) one pitch still ascends, but the modes contain the same number of pitches, thus an M1 categorization instead of an M2a.

Eb Major / Harmonic Minor	Eb	F	G	Ab	Bb	Cb	D
D:M-Mode VII	Eb	F	G	Ab	Bb	C	D
Pitch movement	M1: one pitch ascends						

Table 45– Voice leading between a given Eb mode and a projected D mode

An R1 tonal category accounts for the same change in pitch, although the voice leading in an R1 resolution usually results in a pitch descending rather than ascending. Also, from this tonal perspective, the [Eb F G Ab Bb Cb D] mode pitches of Eb Major / Harmonic Minor would need to be considered as chord tones: i.e. as some kind of EbM7b13⁶⁶. If a M7b13th sonority were to be reduced to five pitches, the [Root-3-M7-9-b13] chord tones would likely be chosen. The following table accounts for the voice leading between an EbM7b13 and a Dm7b5 (a b9 extension is added to avoid doubling the root and to reduce the voice leading movement):

EbM7b13	Eb	G	D	F	Cb
Dm7b5	(Eb b9)	Ab	D	F	C
Pitch movement	R2: two chord tones ascend in parallel				

Table 46 – Voice leading between an EbM7b13 and a Dm7b5

In this example, the resolution type changes from an R1 to an R2. In addition to the [Cb→C] change in chord tone, an ascending motion occurs between the respective 3rd and b5th [G→Ab].

⁶⁶ Since the Eb pedal was prominent enough to be used as the root of the designated mode (as opposed to the Bb in the given Bb7b9sus/Eb chord) an [Eb] is used as the root in the proposed chordal/tonal sonority.

In both of these examples, the voice leading motion between a modal setting and a tonal setting is considered from the two perspectives. Although both perspectives result in similar voice leading types, a clear distinction between the categorization criteria still exists. This distinction can be illuminated through a reconsideration of the scale-chord dichotomy. From a modal perspective the dichotomy occurs in a scale→chord direction. From a tonal perspective the dichotomy occurs in a chord→scale direction.

From an analytical framework perspective both considered directions reveal something unique. In the above example the modal scale→chord perspective revealed that it is possible to connect the two setting through minimal changes in mode voices: by implying a D Locrian over the Dm7b5. On the other hand, through a chord→scale tonal perspective, it becomes more difficult to minimize the voice movement to one chord tone: the necessary [G] chord tone in the Eb sonority could not easily be accommodated in a Dm7b5 voicing (the [G] as an 11th or a suspension would clash with the [Ab] b5). For the purposes of an objective analytical framework, it seems logical that the perspective lead be dictated by the Score2 improvisation itself. In a tonal-modal passage, such a Passage#5, either a more modal/scale-based improvisation or a more tonal/choral-based approach will be realized over mm.3-4. The performance style that either maintains itself or changes will be the determining factor in the type of analytical perspective chosen.

3.6. Score 3 Derivations

The following examples (Figure 12a-e) present an array of harmonic variations for each of the five passages. These variations will touch on all of the category possibilities referenced in Appendix D: R1, R2, R3, and R4 (including substitutions) for the tonal passages and M1, M2a, M2b, M3a, and M3b for the modal passages. Each group will begin with the “*initially derived example*” as determined for each passage in section 3.1 to 3.5 respectively. Next, three harmonic variations will follow. The sum of these variations account for only a small portion of the total *shallow structures* inherent in Score1 *deep structure*. As concrete examples, the variations can be used for comparisons of any Score2 improvisations. It would follow that the voice leading from any Score2 could then be added to the ever growing body of *shallow structures*. Thus, the *surface structure* becomes part of the *shallow structure*.

For the chord alterations in the tonal settings the chord defining 3rd and 7th tones remain true to their major-minor designation. This does not mean, though, that a reharmonization that changes the 3rd and 7th major-minor designations is invalid or “wrong”, instead a reharmonization of this type would highlight a performers harmonic preference. For example, an Ab9 dominant sonority could be chosen instead of the Abm11 minor sonority in the second measure of Passage #2 without disrupting the flow of the phrase. Also, in some instances not every chord tone is present in the chosen mode or chord voicing: i.e. some of the chosen 11th chord voicings lack a 3rd, thus treating the 11th as a 4th suspension.

It should also be noted that a complete framework for the entire *Dolphin Dance* harmonic structure would need to include Score3 variations derived from each of the

remaining passages: Intro1-4, mm.13-16, mm.21-24, and mm.25-30. The included passages, though, aptly illuminate the harmonic richness embedded in *Dolphin Dance's* voice leading fabric.

Score3 - Passage #1

The score is divided into four systems, each representing a different voice leading variation. The first system is labeled 'Initially Derived Voicing'. Each system consists of a treble and bass staff with a grand staff bracket on the left. Chord symbols are placed above the treble staff, and Roman numerals (R1, R2, R3, R4) are placed in the center of the system. The first system also includes a melodic line in the treble staff.

System 1: Initially Derived Voicing

Measure	Chord	Voicing
5	Cm7	R2
6	A ^b M9#11	R2
7	Cm7	R2
8	Am11	R1

System 2

Measure	Chord	Voicing
5	Cm9#6	R2
6	A ^b M7#11	R2
7	Cm9#6	R3
8	Am7	R3

System 3

Measure	Chord	Voicing
5	Cm7	R1
6	A ^b M9#11	R4
7	Cm9#6	R4
8	Am9	R1

System 4

Measure	Chord	Voicing
5	Cm9	R2
6	A ^b M9#11	R2
7	Cm9	R4
8	E ^b m9	R1

Substitution: tritone

Example 12a – Score3 Variations – Passage #1

Score3 - Passage #2

Initially Derived Voicing

The score consists of five systems of piano accompaniment, each with a treble and bass staff. The first system is labeled 'Initially Derived Voicing'. The second system is labeled '1'. The third system is labeled '2'. The fourth system is labeled '3'. The fifth system is labeled '3' and includes substitutions.

System 1 (Initially Derived Voicing):

- Chords: D7, G M7, A^bm7, D^b7, F m11, B^b7
- Voicings: R2, R2, R2, R3, R1

System 2 (1):

- Chords: D9^b13, G M9⁶, A^bm7sus, D^b9[#]5, F m11, B^b7^b9
- Voicings: R2, R4, R4, R2, R2

System 3 (2):

- Chords: D7[#]9, G M7⁶, A^bm9sus, D^b13, F m11, B^b9
- Voicings: R3, R2, R2, R1, R1

System 4 (3):

- Chords: A^b9[#]11, G M9, A^bm9, G7[#]9[#]5, F m11, G9^b13
- Voicings: R2, R2, R1, R1, R2

System 5 (3):

- Substitutions: tritone, tritone, third related

Example 12b – Score3 Variations – Passage #2

Score3 - Passage #3

Initially Derived Voicing

The score consists of four systems of piano accompaniment, each with a treble and bass staff. The measures are numbered 17, 18, 19, and 20 at the top. The chord symbols and mode names are as follows:

Measure	Chord Symbol	Mode Name
17	G M7	G:M-Mode I
18	G9sus	G:M-Mode V
19	A/G	G:MM-Mode IV
20	G9sus	G:M-Mode V

The systems are labeled with numbers 1, 2, and 3 on the left side of the staves. The modes are labeled M1, M2b, M2a, M3a, and M3b. The modes are also labeled with their corresponding chord symbols: G:M-Mode I, G:M-Mode V, G:MM-Mode IV, G:P5-Mode I, G:WT-Mode I, G:M-Mode IV, G:MM-Mode V, G:MM-Mode III, G:Major/Harmonic Minor, and G:M-Mode V.

Example 12c – Score3 Variations – Passage #3

Score3 - Passage #4

Initially Derived Voicing

31 D M7/E 32 C M7/E 33 D M7/E 34 C M7/E

M1 M1 M1 M1

E:M-Mode II E:M-Mode VI E:M-Mode II E:M-Mode VI

1 M3a M3a M3a M3a

E:M-Mode V E:M-Mode III E:M-Mode V E:M-Mode III

2 M3b M3b M3b M3b

E:M-Mode II E:MM-Mode V E:M-Mode II E:MM-Mode V

3 M2a M2a M2b M2b

E:P5-Mode II E:M-Mode VI E:P5-Mode II E:M-Mode III

Example 12d – Score3 Variations – Passage #4

Score3 - Passage # 5

Initially Derived Voicing

1 2 3 4

D $\flat$ M7/E $\flat$ B $\flat$ 7b9/E $\flat$ B $\flat$ 7susb9/E $\flat$ Dm7b5 G7b9

M3b (---) M2a/R1 R1

E $\flat$:M-Mode II E $\flat$ -Major/Harmonic Minor

1 M1 (---) M2b R3

E $\flat$:M-Mode II E $\flat$:MM-Mode I

2 M1 (---) M2b R2

E $\flat$:M-Mode V E $\flat$:M-Mode I

3 M2a (---) M2a R4

E $\flat$:P5-Mode II E $\flat$:MM-Mode III

Dm7b5 G7b9b13 Dm7b5b9 G7b9 Dm7b5b9 G13#9

Example 12e – Score3 Variations – Passage #5

Part IV: Applying the Framework

Two *Dolphin Dance* piano improvisations, one each by Bill Evans and Herbie Hancock, will be analyzed in this section. The combined harmony implied in their hands will be considered in the harmonic reduction. The implied harmony from their improvised realizations in Passages #1 to #5 (as extracted and analyzed in Part III) will then be categorized according to their voice leading: i.e. 1) how the harmonically pertinent voices connect and resolve in the tonal settings and 2) according to which modes are articulated during the modal passages and how their pitch content connects. As the improvisations become dissected, subjective decisions on which notes are most harmonically relevant will be made – in particular with the right hand melodic portion of the improvisations. Although these decisions will be grounded in analytical reasoning, they are nonetheless interpretative and ultimately based in intuition.

In determining the implied harmonic content of a given improvisation, both the horizontal and vertical pitch components need to be reduced to a single vertically stacked sonority, as per all the respective tonal and modal sonorities in the Score3 variations. For the tonal passages, this reduction will adhere to a five-pitch chord tone voicing. For the modal passages, this reduction will adhere to a five to eight-pitch mode voicing, a reduction that accommodates one of the modal families: pentatonic (5 pitches), whole-tone (6 pitches), major and melodic (7 pitches), and diminished (8 pitches). For improvised passages where an excess of possible voices or a shortage of voices are played, the following criteria will be considered:

- Pitches of the original melody
- Starting and ending notes of a melodic line
- Melodic notes played on strong beats
- Melodic notes that rhythmically align with left hand accompaniment
- Non-chord tones : neighbour notes, suspensions, appoggiaturas, etc.
- Impact of melodic sequences
- Impact of early/late harmonic realizations
- Reharmonization
- Implied harmony in passages with less than five notes articulated
- Impact of pedal point and introduced ostinato

For each passage, Evans's harmonic reduction will be presented first, followed by Hancock's. The reductions will be based on the following *Dolphin Dance* Score2 transcriptions: four choruses from Bill Evans' performance and two choruses from Herbie Hancock's performance. As there may be harmonic discrepancies among the repeated improvisations over the same passage, the harmony implied within each choruses will be considered and weighed accordingly. Only the most prominent harmonization interpretation will be chosen for the final analysis (again a subjective decision based on intuition). The chosen harmonies will next be reduced to a string of voice leading connections that will be categorized according to their voice leading quality. Finally these voice-leading types will be reduced to a voice-leading sum.

Each set of passage analysis will conclude with an analytical commentary section. In this section Evans and Hancock's improvisatory style will be discussed according to

their consistency in harmonic choices from chorus to chorus, their harmonic adherence to Score1 and Score3, and their harmonic innovations.

4.1. Passage #1 (mm.5-8)

4.1.1. Bill Evans' Piano Solo Performance:

The musical score for Bill Evans' Piano Solo Performance of Passage #1 (mm.5-8) is presented in five staves. The top staff is the Lead Sheet, showing the melody with chords Cm7, A♭M9#11, Cm7, A♭11, and D7. The second staff is Piano Solo Chorus 1, which includes a pick-up measure from the previous chorus. The third staff is Piano Solo Chorus 2, labeled 'From bass solo'. The fourth staff is Piano Solo Chorus 3, labeled 'Piano solo con't'. The fifth staff is Piano Solo Chorus 4, labeled 'From drum solo'.

Example 13 –Evans 4-measure Passage#1: mm.5-8 with added pick-up m.4 (Tonal)

In m.5 Evans clearly outlines a Cm7 harmony in all four choruses. The LH accompaniment supports the Cm7 harmony by articulating the 3rd-7th [Eb Bb] in Chorus 3 (Ch3, hereafter) and 4 (Ch4) and by adding a 9th [D] extension in Ch2. In the RH the Evans embellishes the melody in all four choruses. The melodic 3rd-4th-5th [Eb F G] is harmonized by thirds in Ch1, and is articulated through an embellished retrograde variation in Ch2 and Ch3. In all RH choruses the notes of Cm triad are outlined. Thus, a Cm9 harmony is implied for m.5.

A reharmonization occurs in m.6 with the dominant seventh [Gb] emphasized in each of the choruses: each of the LH realizations includes the 3rd-7th [Gb C] during m.6. This harmonic choice conflicts with the AbM9#11 lead sheet sonority. The b7th-9th-#11th resulting augmented sonority is emphasized consistently in the RH portion of Ch1-3. In Ch1 the augmented sonority is further explored through chromatic and sequential embellishment. The prominence of the [Gb Bb D] harmonic extensions in all of the choruses strongly suggest an Ab9#11 implied harmony for m.6.

Measure 7 parallels m.5 with its implied Cm7 harmonization, although no 9th [D] is clearly implied in any of the choruses. In Ch3 an 11th [F] is implied, but it arguably resolves to the 3rd [Eb] during the 3rd beat, thus dismissing a case for a Cm11 implied harmony. In the final measure of the passage the 11th is strongly implied in Ch1, through a [D→D] octave spanning, and in Ch3, passed through in the rising progression. A b9th [Eb] is implied for the D7 sonority, particularly in Ch3 as the RH [Eb] aligns with the LH 3rd-7th [F# C] accompaniment. The LH alignment with the [Eb] strengthens the case for its inclusion in the implied harmony: thus, Evans implies an Am11-D7b9 harmony for the

final measure. The following table accounts for the voice leading that occurs in Evans' implied harmonization of Passage #1:

Cm9		Ab9#11		Cm7		Am11		D13b9	
D			3	C	1	C	3	C	7
Bb	7	Bb	9	Bb	7	B	9	B	13
G			b7	G	5	G			3
Eb			#11	Eb		D	11	Eb	b9
C	1	Ab	1	C	1	A	1	D	1
→→→→		→→→→		→→→→		→→→→			
R2 – 3 voices		R2 – 2 voices		R3 – 2 voices		R3 – 2 voices			
desc. in parallel		asc. in parallel		move in contrary		move in contrary			
				motion		motion			

Table 47 – Evans' Implied Voice leading of Passage #1

4.1.2. Herbie Hancock's Piano Solo Performance:

The musical score for Herbie Hancock's Piano Solo Performance, measures 5-8, is presented in three staves. The top staff is the Lead Sheet, showing a melodic line with chords Cm7, AbM9#11, Cm7, Am11, and D7. The middle staff is Piano Solo Chorus 1, showing a harmonic accompaniment with a 'sequence' marked in measures 6 and 7. The bottom staff is Piano Solo Chorus 2, showing a more complex melodic line with triplets and a '11' marking in measure 6. A dashed line connects the 'sequence' in Chorus 1 to the '11' in Chorus 2.

Example 14 –Hancock 4-measure Passage#1: mm.5-8 (Tonal)

In m. 5 Hancock implies a Cm11 harmonic sonority. The 11th [F] is clearly reiterated in the RH of Ch1 and although an 11th is not implied in Ch2, the LH accompaniment articulates the 9th [D] extension in Ch2. Hancock clearly implies a M7th [G] in m.6 in both the LH voicing in Ch1 and the RH melodic line in both choruses. This harmonic realization, which aligns with Score1, differs with Evans' reharmonization. Hancock articulates the M9th [Bb] and #11th [D] in the Ch1 RH ascending line, thus implying a AbM9#11.

In m. 7 the 9th in the C minor sonority is retained while the 11th loses its prominence: the 11th is weakly reiterated in the LH anticipated downbeat in Ch1 as part of a quartal [F B Eb] sonority and on the 3rd beat in the RH ascending line in Ch2, thus the Cm9 implied harmony for m. 7. The seemingly out of place Bbm9 rootless sonority during the 4th beat of both LH accompaniments is best interpreted as a chromatic anticipation to the Am9 rootless voicing occurring on the downbeat of m.8. Trying to explain the sonority in terms of a C minor harmony would render meaningless results: the [Db F Ab C] chord tones in terms of a C minor harmony would be the [b9th-11th-b13th-root] with omitted 3rd and 7th sonorities.

In the final measure, Hancock implies extended harmonies for both chords in the II-V figure: the 11th of the Am sonority is strongly implied through a RH octave realization in Ch2. and a 13th voicing is articulated in the Ch2 RH part for the D7 sonority. These extensions imply Am11-D13 sonorities for m.8. The following table accounts for the voice leading that occurs in Hancock's implied harmonization of Passage#1:

Cm11		AbM9#11		Cm9		Am11		D13	
D		C	3	D	9	D	11	D	1
Bb	7	Bb	9	Bb	7	B	9	B	13
F	11	G	7	G	5	G			3
Eb		D	#11	Eb			3	C	7
C	1	Ab	1	C	1	A	1	D	1
→→→→		→→→→		→→→→		→→→→			
R4 – 3 voices		R2 – 2 voices		R3 – 2 voices		R1 – 1 voice			
change pitch		move in parallel		change pitch		descends			

Table 48 – Hancock’s Implied Voice leading of Passage #1

4.1.3. Analytical Commentary – Passage#1

Evans and Hancock imply similar harmonic structures during this passage. The notable exceptions occur as follows: 1) during the C minor harmonic extensions: Hancock voices the 11th and 9th as compared to Evans’ 9th and 7th respective realizations; 2) in m.6 Evans alters the quality of the Ab sonority from a major seventh [G] based chord to a dominant seventh [Gb] based chord: Evans maintains the 7th [Gb], 9th [Bb], and #11 [D] extensions in all four chorus performances; and 3) Evans includes a lowered 9th in the D13 voicing. Their respective performances compare to Score3 in Table 49 on the following page. This table (and the subsequent ones in each of the Analytical Commentary sections) includes a condensed version of the Score3 variations and the voice leading and implied harmony from the two performances. The number in the curved brackets (x) refers to the number of voices that change pitch during each of the changes in harmonic. For example, the R2 (2) designator for the Cm7→AbM9#11 in the *initially derived voicing* accounts for the two voices [D→C] and [Eb→D] that descend in parallel (refer back to Table 37). The [x:y] designator refers to the “**voice-leading sum**”: [(x = resolution type): (y = number of moving voices)]. For example, the [7:7] is calculated as follows: R₂+R₂+R₂+R₁=7 and (2)+(2)+(2)+(1)=7.

		m.5	m.6	m.7	m.8
S C O R E 3	Initially Derived Voicing	Cm7	AbM9#11	Cm7	Am11 D7
		R2 (2) R2 (2) R2 (2) R1 (1) [7:7]			
	Variation 1	Cm9/6	AbM7#11	Cm9/6	Am7 D9#5
		R2 (3) R2 (3) R3 (2) R3 (2) [10:10]			
	Variation 2	Cm7	AbM9#11	Cm9/6	Am9 D13
		R1 (1) R4 (3) R4 (3) R1 (1) [10:8]			
	Variation 3	Cm9	AbM9#11	Cm9	Ebm9 Ab13
		R2 (2) R2 (2) R4 (3) R1 (1) [9:8]			
Evans’ Performance		Cm9	Ab9#11	Cm7	Am11 D13b9
		[10:9] R2 (3) R2 (2) R3 (2) R3 (2)			
Hancock’s Performance		Cm11	AbM9#11	Cm9	Am11 D13
		[10:8] R4 (3) R2 (2) R3 (2) R1 (1)			

Table 49 – Passage #1 Comparison of Score3 and Score2 Performances

By including the 11th [F] in m. 5, Hancock impacts the voice leading by creating a contrary motion across the change in harmony. In Evans’ version, the voices all move in descending parallel motion with the 5th [G] moving to the 7th [Gb] instead of the 11th [F] moving up to the 7th [G]. Evans’ reharmonization also causes a third voice to move: instead of the [G] holding pitch as the 5th-M7th-5th of the Cm9-Ab9#11-Cm7 progression, there is a chromatic descent and ascent as the [G] moves to and from the flattened 7th [Gb]. In both performances three voices change from mm. 5-6, but a different type of resolution occurs due to their choices in harmony. This results in contrasting voice leading resolution types: R2 (3) and R4 (3) respectively.

In the final measure, Evans’ inclusion of the b9 causes the 11th from the Am11 chord to ascend instead of holding pitch as is the case in Hancock’s realization. Again, different resolution types result: R3 (2) and R1 (1) respectively.

The voice-leading types for both harmonic realizations are slightly higher⁶⁷ than those in the Score3 initially derived voicing: a voice-leading sum of 7:7 compared to Evans' sum of 10:9 and Hancock's sum of 10:8. The harmonic alterations that both Evans and Hancock introduce in their performances cause these increases in voice leading sums. Neither Evans' nor Hancock's realizations matches any of the Score3 derived variations. Hancock's voice leading sum, though, matches the sum in Variation 2 (10:8). Although the sum matches, the voice leading is not identical: in Variation 2 the majority of the voices move in during the middle two resolutions whereas in Hancock's performance, there is an overall decrease in the number of voices moving. The commonality in sums, in this case, only indicates that a similar level of harmonic alterations (i.e. extensions) occur in each realization.

⁶⁷ The "higher" qualifier refers to the number designator of the category – i.e. a change in category of $R1 \rightarrow R2 \rightarrow R3 \rightarrow R4$. Contrarily, a movement from $R4 \rightarrow R3 \rightarrow R2 \rightarrow R1$ would be qualified as "lower".

4.2. Passage #2 (mm.9-12)

4.2.1. Bill Evans' Piano Solo Performance:

GM7 A^bm7 D⁹7 Fm11 B^b7

Lead Sheet

Piano Solo Chorus 1

Piano Solo Chorus 2

Piano Solo Chorus 3

Piano Solo Chorus 4

Example 15 –Evans 4-measure Passage#2: mm.9-12 (Tonal)

Evans continues to accompany with simple 3rd-7th dyads: in m. 9 pitches [F# B] imply a GM7 sonority, in m.10 dyads [Gb Cb] and [F Cb] outline an Abm7 Db7 II-V pattern, and in m.11 the [F Bb] dyad implies a GbM7 “I” completion of the II-V-I tonal figure. These rootless dyads articulate the fundamental pitches (the 3rd-7th) to the harmony implied by Evans.

In m. 9 Evans plays a 9th [A] in both the Ch1 LH arpeggiated accompaniment and on the 3rd beat during the Ch3 RH melodic line. The 9th coupled with the [F# B] dyad strongly implies a GM9 for the measure.

Evans outlines the 1-3-5-7 chord tones for each of the chords in the II-V-I in Gb major over mm. 10-11. By clearly outlining the fundamental/defining pitches of these chords Evans clearly articulates his harmonic reinterpretation. By adding the GbM7 harmony, thus completing the II-V figure in m.10, Evans breaks the succession of third related II-V's. His reharmonization also reinforces the tonal quality of the passage.

In m. 12 he truncates the two measure II-V figure in Eb major (or IV bVII in C minor) to one measure. Evans alters both sonorities in this tonal figure. He highlights the 9th of the Fm sonority in the Ch2 RH melody and in the LH 3-5-7-9 rootless voicing in Ch3. He then raises the 5th in the Bb7 sonority in the RH ascending line in both Ch2 and Ch3. In Ch2 both the 13th and the #5 are passed through during the fourth beat, but in Ch3 only the #5 is articulated, thus overall, a Bb7#5 sonority is more strongly implied. The following table accounts for the voice leading that occurs in Evans' implied harmonization of Passage#2:

In m. 9 both the 6th [E] and the 9th [A] are implied in the LH rootless voicings in both choruses. The 6th is further reinforced in the RH melodic line Ch1 on the 3rd beat. In m. 10 Hancock splits the II-V harmonization over two choruses: in Ch1, m. 10 is harmonized by only an Abm7 sonority and in Ch2 by only a Db13 sonority. The 13th [Bb] is reinforced in both LH and RH parts in Ch2. This harmonic splitting complicates the voice leading interpretation as the Fm9 harmony in m.11 is approached by two different chords. The following table accounts for the resulting voice leading from these different harmonic approaches:

Abm7		Fm9			Db13		Fm9	
Ab	1	Ab	3					
G $\flat$	7	G	9		F	3	G	9
E $\flat$	5	E $\flat$	7		E $\flat$	9	E $\flat$	7
C $\flat$	3	C	5		C $\flat$	7	C	5
Ab	1	F	1		Db	1	F	1
→→→→					→→→→			
R2 – 2 voices					R4 – 3 voices			
ascend in parallel					change pitch			

Table 51 – Comparison of two harmonies resolving to an Fm9 sonority

Two voice-leading types result from Hancock's split in harmony over the two choruses: an R2 and R4 respectively. Had he not implied an extended 13th to the Db7, a 5th [Ab] would be included instead in the Db voicing and the voicing types would be R2 (2) for both.

Although implied over the Db7 harmony, Hancock avoids the 11th [Bb] for the Fm sonority in m.11: he only extends the harmony to the 9th [G]. The RH melodic line and the LH accompaniment figure in both choruses reinforce the [G]. For the Bb7

sonority in m.12, though, he fully extends the harmony. Hancock includes a #11th [E] in the LH in Ch2 and a 13th [G] in the LH and RH in both choruses. The [Eb] in the Ch1 LH accompaniment occurs as a suspension from the Fm9 sonority that resolves during the second beat to a 13-7-9-3 [G Ab C D] rootless voicing. The following table accounts for the voice leading that occurs in Hancock's implied harmonization of Passage #2. It should be noted that the Abm7-Db7 chords are included in succession, rather than omitting one of them (i.e. choosing only one of Hancock's realized choruses).

GM6\9		Abm7		Db13		Fm9		Bb13#11	
A			1	Bb			3	Ab	7
F#	7	Gb			3	G	9	G	13
E			5	Eb	9	Eb	7	E	#11
B	3	Cb	3	Cb	7	C	5	D	3
G	1	Ab	1	Db	1	F	1	Bb	1
→→→→		→→→→		→→→→		→→→→			
R2 – 2 voices		R3 – 2 voices		R4 – 3 voices		R2 – 2 voices			
descend in		move in		change pitch		ascends in			
parallel		contrary motion				parallel			

Table 52 – Hancock's Implied Voice leading of Passage #2

4.2.3. Analytical Commentary – Passage#2

Evans realizes a slightly lower voice leading categorization progression compared to both Hancock's altered harmonization and the Score3 initially derived voicing. Two factors contribute to this. First, by adding the Gbm7 sonority, Evans completes the II-V tonal figure which results in tighter voice leading connections. (Also note that the inclusion of a new harmony adds a voice leading connection to the overall accumulating voice leading sum for the passage). Second, with the exception of the 11th in the F minor

sonority, Evans does not go beyond a 9th in his voicings. This similarly results in tighter voice leading connections, recall the minimal movement of the 3rd→7th, 7th→3rd, 5th→9th, and 9th→5th voices. Evans realization results in an 8:7 voice leading sum.

Hancock, on the other hand, does extend the harmony beyond those designated in the Score 1 lead sheet. He adds a 6th [E] to the GM9th, a 13th [Bb] to the Db7, a 9th [G] to the Fm7, and a #1 [E] and 13th [G] to the Bb7. These alterations create higher voice leading categories, in particular the R4 contrary motion occurring between the Db13 and the Fm 9, and result in an 11:9 voice leading sum. The following table compares the voice leading in both of the performances with Score3:

		m. 9	m.10		m.11	m.12
S C O R E 3	Initially Derived Voicing	GM7	Abm7 Db7		Fm11	Bb7
		R3 (2) R1 (1) R1 (1) R1 (1) [6:5]				
	Variation 1	GM6/9	Abm7sus Db9#5		Fm11	Bb7b9
		R4 (3) R4 (3) R2 (3) R2 (4) [12:13]				
	Variation 2	GM7/6	Abm9sus Db13		Fm11	Bb9
		R2 (3) R2 (2) R1 (1) R1 (1) [6:7]				
	Variation 3	GM9	Abm9 G7#9#5		Fm11	G9b13
		R2 (2) R1 (1) R1 (1) R2 (2) [6:6]				
Evans' Performance		GM9	Abm7 Db7		GbM7	Fm11 Bb7
		[8:7]	R3 (2)	R1 (1)	R2 (2)	R1 (1)
Hancock's Performance		GM6/9	Abm7 Db13		Fm9	Bb13#11
		[11:9]	R2 (2)	R3 (2)	R4 (3)	R2 (2)

Table 53 – Passage #2 Comparison of Score3 and Score2 Performances

Again, neither performance aligns directly with the Score3 variations. Evans' voice leading, excluding the reharmonization in m.11, nearly matches the initially derived voicing: consider that by removing the R2 (2) from the voice-leading sum calculation, the 8:7 reduces to 6:5. Evans' reharmonization, though, is central to his interpretation, and should therefore not be removed. The closeness of Hancock's 11:9 sum with Variation 1's 12:13 sum reflects the harmonic extensions present in both harmonizations, but the actual extensions do not match at all: i.e. 13th vs. #5, 9th vs. 11th, 13#11 vs. 7b9, respectively.

4.3. Passage #3 (mm.17-20)

A slight change in analytical approach occurs for the modal passage analysis: the improvised RH and LH lines are reduced to a sequential string of pitches, rather than a collection of chord tones. The reduction process adheres to the following criteria: repeated notes are discarded, “missing” notes in terms of a particular scale are either left omitted or are proposed, and “extra” notes are either discarded or weighed against conflicting pitches. For example, in a C modal passage where an arrangement of pitches [C E F G A B] are played, the “missing” [D] would be proposed, thus suggesting a complete C:M-Mode I. Contrarily, if pitches [C D E F G G# A B] are played, the “extra” [G#] would be weighed against the [G] and would ultimately be discounted in favour of the more familiar C:M-Mode I. Finally, if pitches [C D F G A] are played, instead of proposing an [E] and [B] to fill out the major scale mode, the passage would be categorized as a C:P5-Mode II.

4.3.1. Bill Evans’ Piano Solo Performance:

In this passage Evans articulates the same modes of the Score3 *initially derived mode*: G:M-Mode I, G:M-Mode V, G:MM-Mode IV and G:M-Mode V. In m. 17 the pitches [G A B C D E F#] are collectively touched on during the four choruses, thus suggesting the G:M-Mode I. Two discrepancies arise, though, that conflict with this conclusion. First, in Ch2 a [C#] is sounded in the RH, thus suggesting a G:M-Mode IV. This one time instance is overshadowed by two iterations of [C] in the RH in Ch1 and Ch3. Second, an [F] occurs in the latter half of m. 17 in Ch2 and Ch3. By examining only the RH, the [F] appears to be in conflict with the [F#]. By also considering the LH, Evans

GM7 G9sus A/G G9sus

Lead Sheet

Piano Solo Chorus 1

Piano Solo Chorus 2

harmonic shift

Piano Solo Chorus 3

harmonic shift

Piano Solo Chorus 4

3

Example 17 –Evans 4-measure Passage#3: mm.17-20 (Modal)

appears to anticipate the modal harmony of the following measure with an [F A C E] accompaniment voicing, thus complimenting the G9sus harmony in m.18. This shift in harmony, from the downbeat of m.18 to the 4th beat of m.17, moves the [F] to a more

complimentary G:M-Mode V modal space Evans repeats this one beat anticipated shift in the following chorus.

As in m. 18, Evans emphasizes pitches [G A B C D E F] in m. 20. Pending a few chromatic inflections occurring in Ch2 m. 20 (as well as a few in Ch3 m. 18) the modal pitches from G:M-Mode V are projected prominently during the G9sus harmony. pitches occurring on the beats are modal pitches from G:M-Mode V. In m. 19 the only change in pitch collection occurs on the G mode's fourth pitch [C→C#]: Evans LH accompaniment articulates a [C#] in three of the four choruses, and no iteration of [C] appears in any of the choruses. The [C#] coupled with maintaining an [F] throughout the measure implies a G:MM-Mode IV for m. 19. Evans' implied voice leading occurs as follows:

Harmonic Label		GM7	G9sus	A/G	G9sus
Chord Tones		G B D F#	G C D F A	G A C# E	G C D F A
Implied Mode (pitches)	7			F	F
	6	E	E	E	E
	5	D	D	D	D
	4	C	C	C#	
	3	B	B	B	B
	2	A	A	A	A
	1	G	G	G	G
Implied Mode (label)		G:M-Mode I Ionian	G:M-Mode V Mixolydian	G:MM-Mode IV Lydian-Dominant	G:M-Mode V Mixolydian
Change in Mode		→→→→ M1 – one pitch descends	→→→→ M1 – one pitch ascends	→→→→ M1 – one pitch descends	

Table 54 – Evans' Implied Voice leading for Modes in Passage #3

4.3.2. Herbie Hancock's Piano Solo Performance:

4-Measure Passage #3: mm. 17-20 - Modal

GM7 G9sus A/G G9sus

Lead Sheet

Piano Solo Chorus 1

Piano Solo Chorus 2

beginning of sequence

Sequence continues into the next passage (mm. 21-24)

F7sus G/F F7sus Em7b5 A7

Lead Sheet

Piano Solo Chorus 1

Piano Solo Chorus 2

Example 18 –Hancock 4-measure Passage#3: mm.17-20 (Modal)

Hancock begins Passage#3 similarly to Evans by implying the same succession of modes: G:M-Mode I for m. 17, G:M-Mode V for m. 18, and G:MM-Mode IV for m. 19.

It should be noted that the pitches played in m.19 do not cover a complete modal

collection: pitches [D] and [F or F#] are omitted from the [G A B C# E] collection. Although only five pitches are sounded, these pitches do not fit into any regular pentatonic scale mould. Instead, pitches [D F] are proposed, thus creating a Lydian dominant mode; these two are proposed rather than pitches [D# F#] because they are present in the previous measure – in listening to this passage, the sound of the [D] and [F] would carry through from m. 18 to m. 19, even though they are not actually aurally resounded during m. 19.

In m. 20, Hancock's performance differs considerably from Evans'. As a form of harmonic shifting, Hancock articulates a minor mode that aligns with the modal setting of the following passage (mm.21-23: included in Figure 18). His realization in m. 20 can be reduced to an implied G:M-Mode VI through pitches [G A Bb D Eb]. Again, no regular pentatonic scale applies, thus the following pitches are proposed: of the two missing pitches, [C or C#] and [F or F#], [C] and [F] pitches 1) are present in the previous measure, 2) they create a "smoother" voice leading between the connecting modes in mm. 19-20, and 3) they avoid two potential resolutions spanning augmented second intervals (Bb→C# and Eb→F#). By adding [C] and [F] pitches to the all ready existing pentachord, an Aeolian mode is implied: [G A Bb C D Eb F].

Another factor to consider is the implied modal setting of the following passage (hence its inclusion in the above transcription). Hancock articulates an F:M-Mode V mode in m.21. This mode fully overlaps with the pitches of G:M-Mode VI – i.e. they contain identical pitch collections: G:M-Mode VI contains [G A Bb C D Eb F] and F:M-Mode contains [F G A Bb C D Eb]. The early arrival of the "flatter" mode in m.20 marks

the start of a sequence in Ch1 that carries through to m.24. Hancock's modal reinterpretation repeats in Ch2.

Another factor to consider, the [G A B $\flat$ D E $\flat$] pitch collection does not directly conflict with the G9sus harmonic designator. From a chord tone perspective, a G9sus chord requires a root [G], sus [C], dominant 7th [F], and a 9th [A]. Neither the third [B $\flat$ or B] or the 6th [E $\flat$ or E] directly factor in to the chordal requirements. Albeit the sus and 7th pitches [C F] are only implied in Hancock's performance, but the included [B $\flat$] and [E $\flat$] do not create any harmonic discrepancy. Furthermore, a suspended sonority need not resolve to a major third, nor would it need to resolve at all in a modal setting. Hancock plays with the expectation of the harmony of m.18 returning. Instead of recalling the previous harmony, he projects the harmony forward. His modal reinterpretation impacts the voice leading as follows:

Harmonic Label		GM7	G9sus	A/G	G9sus
Chord Tones		G B D F $\sharp$	G C D F A	G A C $\sharp$ E	G C D F A
Implied Mode (pitches)	7			F	F
	6	E	E		
	5	D	D	D	D
	4	C	C	C $\sharp$	
	3	B	B		
	2	A	A	A	A
	1	G	G	G	G
Implied Mode (label)		G:M-Mode I Ionian	G:M-Mode V Mixolydian	G:MM-Mode IV Lydian-Dominant	G:M-Mode VI Aeolian
Change in Mode		→→→→ M1 – one pitch descends	→→→→ M1 – one pitch ascends	→→→→ M3a – three pitches descend in parallel	

Table 55 – Hancock's Implied Voice leading for Modes in Passage #3

4.3.3. Analytical Commentary Passage#3

The move from the Passage#2 tonal setting to the Passage#3 modal setting is marked not only by the change in harmonic character, but also by the near fully conformant realization to Score3's *initially derived voicing*. Evans performance fully aligns with the implied Ionian→Mixolydian→Lydian-Dominant→Mixolydian modality. The 3:3 voice-leading sum accounts for this conformance, and in this case the like sums represent like voice leading. Refer to the following comparison table:

		m. 17	m.18	m.19	m.20
S C O R E 3	Initially Derived Voicing	G:M-Mode I	G:M-Mode V	G:MM-Mode IV	G:M-Mode V
		M1 (1) M1 (1) M1 (1) [3:3]			
	Variation 1	G:P5-Mode I	G:M-Mode V	G:WT-Mode I	G:M-Mode V
		M2b (0) ⁶⁸ M2a (2) M2a (2) [6:4]			
	Variation 2	G:M-Mode IV	G:MM-Mode V	G:MM-Mode III	G:MM-Mode V
		M3a (3) M3a (4) M3a (4) [9:11]			
	Variation 3	G:MHM ⁶⁹	G:M-Mode V	G:M-Mode IV	G:M-Mode V
		M3b (2) M3a (2) M3a (2) [9:6]			
Evans' Performance		G:M-Mode I	G:M-Mode V	G:MM-Mode IV	G:M-Mode V
		[3:3] M1 (1) M1 (1) M1 (1)			
Hancock's Performance		G:M-Mode I	G:M-Mode V	G:MM-Mode IV	G:M-Mode VI
		[5:5] M1 (1) M1 (1) M3a (3)			

Table 56– Passage #3 Comparison of Score3 and Score2 Performances

Hancock aligns similarly to the harmony in the first three measures of the *initially derived voicing* with like M1 (1) voice leading types. His alliance breaks down, though,

⁶⁸ The zero refers to the fully overlapping of pitches that occurs between the two modes of different number of pitches (i.e. all the pitches in the pentatonic mode I are in the major scale Mode V)

⁶⁹ MHM: Major / Harmonic Minor Mode

in the final measure when he anticipates the modal area of the following section through a G Aeolian realization. This anticipation directly impacts the voice leading (three pitches move chromatically instead of one) and subsequently the voice leading type (M3a) and voice-leading sum (5:5). The higher categorization accurately accounts for the increased changes in modal pitch content.

Hancock's final mode does not appear in the Score 3 variations, as all the other realized modes in this section do. The omission 1) underscores the large number of possibilities that could conceivably be included in a list of Score 3 variations, and 2) highlights Hancock's unique approach to harmonic realization.

4.4. Passage #4 (mm. 31-34)

4.4.1. Bill Evans' Piano Solo Performance:

DM7/E CM7/E DM7/E CM7/E

Lead Sheet

Piano Solo Chorus 1

Piano Solo Chorus 2

Piano Solo Chorus 3

Piano Solo Chorus 4

Example 19 –Evans 4-measure Passage#4: mm.31-34 (Modal)

In perhaps one of the simplest harmonic passages in the *Dolphin Dance* form, Evans creates harmonic interest through minimal pitch inclusion, pitch omission and subtle pitch conflict. The following examples address these interests. In m. 31, only one iteration of the E mode's third pitch is touched on: a [G#] in Ch3. The [G#] implies an E:M-Mode V. During the repeat of the DM7/E sonority in m. 33, Evans avoids the [G or

G#] scale degree entirely. Based on the [G#] present in the harmonically comparable m. 31, an E:M-Mode V will be chosen for both measures.

In m. 32, neither [F] or [F#] pitches are articulated, thus implying either an E:M-Mode III or E:M-Mode VI, respectively. Considering the prominent [F#] in the previous measure, and by looking ahead to m.34 where an [F#] is sounded in Ch2, an E:M-Mode VI designation better accounts for the measure. In m. 34, pending one exception, Evans also articulates an E:M-Mode VI through pitches [E F# G A B C D]. In Ch2 both a [C#] and a [C] are sounded. Recall the harmonic shifting that took place in the previous passage. Evans again marks the shift with the placement of the LH sonority: Evans plays a CM7 sonority after the downbeat and after the [C#], thus an implied E:M-Mode VI for m. 34. The LH alignment allows the [C#] to remain considered as part of the Mixolydian harmony of the previous measure. The following table accounts Evans subtle voice leading in Passage #4:

Harmonic Label		DM7/E	CM7/E	DM7/E	CM7/E
Chord Tones		E D F# A C#	E C E G B	E D F# A C#	E C E G B
Implied Mode (pitches)	7	D	D	D	D
	6		C	C#	C
	5	B	B	B	B
	4	A	A	A	A
	3	C#	G	G#	G
	2	F#	F#	F#	F#
	1	E	E	E	E
Implied Mode (label)		E:M-Mode V Mixolydian	E:M-Mode VI Aeolian	E:M-Mode V Mixolydian	E:M-Mode VI Aeolian
Change in Mode		→→→→ M3a – two pitches descend	→→→→ M3a – two pitches ascend	→→→→ M3a – two pitches descend	

Table 57 – Evans' Voice leading for Modes in Passage #4

4.4.2. Herbie Hancock's Piano Solo Performance:

The musical score for Example 20 consists of three staves. The top staff is the Lead Sheet, showing a sequence of four measures with chords DM7/E, CM7/E, DM7/E, and CM7/E. The middle staff is Piano Solo Chorus 1, and the bottom staff is Piano Solo Chorus 2. Both Chorus 1 and Chorus 2 staves show a sequence of eighth notes, with Chorus 1 featuring a bracket and the word 'sequence'.

Example 20 –Hancock 4-measure Passage#4: mm.31-34 (Modal)

Hancock's improvisation during this passage adheres to its harmonic simplicity. His implied harmonic alternation between an E:M-Mode II and an E:M-Mode VI fully aligns with the modes in Score3's *initially derived voicing*. Hancock projects these modes through a texture of LH seventh chord inversions and RH melodic sequences in both choruses. Taken measure by measure, the combined RH and LH pitches easily reduce to the E Dorian and Aeolian modes, with only the sixth pitch of the E mode [C or C#] differing between the measures.

Consider for a moment the RH in Ch1 taken on its own. Without the LH harmonic support, the RH stays entirely within only one mode: E:M-Mode II [E F# G A B C# D]. The alternation of the [C] to the [C#] occurs only in the LH. Hancock starts the sequence at a point in the Dorian mode where the sixth degree [C#] falls within the Dorian setting. By starting the ascending sequence on the fifth degree [B], Hancock avoids a potential

pitch conflict or a need to alter the mode when the sequence continues into the measures of Aeolian harmony (mm.32, 34). Had the sequence been started on another pitch (i.e. on [G]) during the Dorian setting, some form of bitonal scale, or scale that articulates the alternating mode, may have resulted in the RH. Recall Baker's examples of bitonal scales in section 2.1. Baker constructed scales for slash chords that addressed a collection of pitches for two harmonies. In this example, it is conceivable that if the sequence continued, or if Hancock had started on a different pitch, a comparable E Dorian/Aeolian bitonal scale would result: [E F# G A B C# D E F# G A B C D E]. Taken as a singular mode, this constructed scale could account for the total harmony implied in the passage by Hancock's realization. From this perspective, the dual modal passage could be reconceived as a singular modal passage, much like those found in the early modal jazz compositions such as *So What* and *Impressions*. Hancock's realization, though, avoids this potential predicament by carefully placing the pitches of the sequence. The resulting voice leading of the clearly implied Dorian and Aeolian modes occurs as follows:

Harmonic Label		DM7/E	CM7/E	DM7/E	CM7/E
Chord Tones		E D F# A C#	E C E G B	E D F# A C#	E C E G B
Implied Mode (pitches)	7	D	D	D	D
	6		C	C#	
	5	B	B	B	B
	4	A	A	A	A
	3	G	G	G	G
	2	F#	F#	F#	F#
	1	E	E	E	E
Implied Mode (label)		E:M-Mode II Dorian	E:M-Mode VI Aeolian	E:M-Mode II Dorian	E:M-Mode VI Aeolian
Change in Mode		→→→→ M1 – one pitch descends	→→→→ M1 – one pitch ascends	→→→→ M1 – one pitch descends	

Table 58 – Hancock's Voice leading for Modes in Passage #4

4.4.3. Analytical Commentary – Passage#4

Evans' and Hancock's harmonic conformance with Score3 continues into Passage#4 to an even greater degree. Hancock's realization fully matches Score3's *initially derived voicing*: both with a voice-leading sum of 3:3. (refer to Figure 12d and Table 58 for the voice leading comparisons) Evans' realization, although not matching any of the Score3 variations directly, shares a 9:6 voice-leading sum with Variation 2. In both of these implied modal settings (Variation 2: Dorian-Mixolydian and Evans: Mixolydian-Aeolian), two pitches move chromatically between modes. Evans' M3a voice-leading type also matches the voice leading type of Variation 1. The difference in the mode in the second fourth measures between Variation 1 and Evans' performance, Phrygian and Aeolian respectively, accounts for the differences in voice-leading sum: Variation 1's 9:9 sum compared to Evans' 9:6 sum.

		m.31	m.32	m.33	m.34
S C O R E 3	Initially Derived Voicing	E:M-Mode II	E:M-Mode VI	E:M-Mode II	E:M-Mode VI
		M1 (1) M1 (1) M1(1) [3:3]			
	Variation 1	E:M-Mode V	E:M-Mode III	E:M-Mode V	E:M-Mode III
		M3a (3) M3a (3) M3a (3) [9:9]			
	Variation 2	E:M-Mode II	E:MM-Mode V	E:M-Mode II	E:MM-Mode V
		M3b (2) M3b (2) M3b (2) [9:6]			
	Variation 3	E:P5-Mode II	E:M-Mode VI	E:P5-Mode II	E:M-Mode III
		M2a (1) M2a (1) M2b (0) [6:2]			
	Evans' Performance	E:M-Mode V	E:M-Mode VI	E:M-Mode V	E:M-Mode VI
		[9:6] M3a (2) M3a (2) M3a (2)			
	Hancock's Performance	E:M-Mode II	E:M-Mode VI	E:M-Mode II	E:M-Mode VI
		[3:3] M1 (1) M1 (1) M1(1)			

Table 59 – Passage #4 Comparison of Score3 and Score2 Performances

The harmonic simplicity as realized by both Evans and Hancock during the modal passages contrasts with their harmonic complexity as realized during the tonal passages.

This contrast is most easily recognized through the respective voice-leading sums.

Consider their voice-leading ‘results’ for the first four passages:

Passage	1 (Tonal)	2 (Tonal)	3 (Modal)	4 (Modal)
Evans' Voice Leading Sum	10:9	8:7	3:3	9:6
Hancock's Voice Leading Sum	10:8	11:9	5:5	3:3
Totals	Evans – 18:16 Hancock – 21:17		Evans – 12:9 Hancock – 8:8	
	Evans – 30:25 Hancock – 29:25			

Table 60 – Voice Leading Sums

The total sums for the tonal passages are higher than the totals for the modal passages for both Evans and Hancock: 18:16 compared to 12:9 for Evans and 21:17 compared to 8:8 for Hancock. Both sum components (i.e. for x:y - the sum of the voice-leading types [x] and the sum of the number of voices that change [y]) compare the same. These differences tell us that in the tonal settings both Evans and Hancock imply successive harmonies that require more voices to change pitch than in modal settings. For example, in eight measures of tonal progression (Passage#1 + Passage#2), Hancock’s realizations resulted in 17 essential chord tones changing pitch. Furthermore, these pitch transfers resulted from successive R1-R4 resolution types totaling 21. Comparably, in eight measures of modal progression (Passage#3 + Passage#4), Hancock’s realizations resulted in only 8 modal pitches to change pitch during a succession of M1-M3b types totaling only 8.

It should be noted that the respective tonal-modal sums are not fully congruent.

The sums of the resolution types are non-congruent: R1-R2-R3-R4 contains four types

with the sum ranging from 1-4; M1-M2a-M2b-M3a-M3b contains five types with the sum ranging from 1-3. This discrepancy should be considered when reading too deeply into the numeric relationship between the passages. That being said, the comparisons highlight a general difference in voice leading between tonal and modal passages. Furthermore, the 'comparative sum analysis' reveals that for Passages#1-4, Evans and Hancock imply harmonies that connect with near identical voice leading: Evans overall voice leading sum of 30:25 compared to Hancock's voice leading sum of 29:25 (the non-congruency of the types does not factor into this comparison since the overall sum contains both tonal and modal components).

From a more historical perspective, the contrast of Evans' and Hancock's approach to tonal and modal settings parallels, or perhaps pays homage to, the changes in jazz that the modal tradition grew out of: a freer, harmonically simpler, slower paced approach to playing. For consideration, there may be a more ingrained need to think complexly during a tonally based, II-V-I infused progression than during a modal passage. The increased velocity of hard bebop improvisations and tempos, and the bebop practice of reharmonizing jazz standards with increasingly complex harmonies fuels this ingrained tendency⁷⁰. Evans and Hancock, who both developed their initial improvisatory skills during the 1950's at the height of the hard bebop movement, are well trained in manipulating II-V-I progressions in bebop repertoire. They are also both well aware of the importance of evolving and developing new ideas⁷¹. This dichotomous approach to improvised realizations finds itself in their playing: both Evans and Hancock pit the

⁷⁰ The improvising trends in bebop are contextualized by many jazz writers. For examples, reference the following: Bailey (1992), Burns, K. (2000), Gridley (2003), Martin (1996), Schuller (1968).

⁷¹ At this point in jazz history, the needed evolution involved 1) developing *new* repertoire, rather than re-working existing jazz standards, 2) basing improvisations on innovation rather than virtuosity, and 3) simplicity.

aggressive “ying” tonal tendency against the less aggressive “yang” modal tendency. Or more simply put; their approach to harmonic manipulation changes depending on the type of harmonic setting: tonal or modal.

This is not to say though that a modal realization lacks complexity. On the contrary, modal improvisations often yield a subtly sophisticated harmonization embedded in what seems to be simple on the outside. It is no surprise that both Evans and Hancock were influenced by Debussy and Ravel, two composers closely associated with fostering an Impressionistic musical style that posed a “yang” to the dense chromatic harmony of the late Romantics. That though is a discussion that poses a whole other journey.

4.5. Passage #5 (mm. 1-4)

4.5.1. Bill Evans' Piano Solo Performance:

Lead Sheet

Piano Solo Chorus 1

Piano Solo Chorus 2

Piano Solo Chorus 3

Piano Solo Chorus 4

sequence

Chords: $D^b m7/E^b$, $B^b m7b9/E^b$, $B^b m7sust9/E^b$, $Dm7b5$, $G7b9$

Example 21 –Evans 4-measure Passage#5: mm.1-4 (Modal-Tonal)

In this final passage, Evans strays increasingly from the harmonies implied by the chord labels, except in Ch4. In the fourth chorus, Evans transposes the alternating upper harmonic sonorities of Passage#4 down a semitone: [DM7 CM7] → [DbM7 CbM7]. Evans articulates the sequential nature of this transposition by playing a descending melodic sequential figure in the RH. The implied harmonies from Ch4 will be discounted in the overall voice leading modal analysis of the passage.

For Ch1-3, Evans implies either an Eb:M-Mode V or an Eb:M-Mode II in m. 1 by passing through the mode pitches [Eb F __ Ab Bb C Db]. The lack of the third degree [G or Gb] prevents a definitive mode to be claimed. The fact though, that the harmonic progression begins as a transposed continuation of the Passage#4 down a half step, suggests that same mode type will continue: in this case, the Dorian mode as in m. 31 and m. 33 of Passage#4. An Eb:M-Mode II thus implies a [Gb].

In m. 2, Evans begins to stray harmonically by implying two potential modes, this time, though, the implications are based on inclusion rather than omission: Evans touches on pitches [Eb E F G Ab Bb Cb D] during Ch1-3. The [Eb/E] conflict is not easily accommodated within the same mode. Instead, two separate modes could equally be implied: the Major/Harmonic Minor [Eb F G Ab Bb Cb D] and the incomplete Octatonic or E:DIM-Mode I [E F G Ab Bb Cb __ D]. For the latter mode to be explicitly implied a [C# or Db] pitch would need to be present. In lieu of this omitted pitch, and even though the [E] is quite prominent in Ch2-3, the Eb:Major/Harmonic Minor Mode adequately encapsulates the implied harmony of m.2. Furthermore, the passage is situated over an Eb pedal.

In m. 3, Evans implies a fully major Eb mode by raising the [Cb] sixth Eb mode scales degree to [C], thus articulating an Eb:M-Mode I. Finally, in the fourth measure, Evans returns to a tonal setting by clearly outlining chordal sonorities. For the “II” D minor sonority, Evans articulates a Dm7b5 with an added ninth through a 3-b5-7-9 voicing in the LH accompaniment in Ch2-3. For the “V”, Evans extends the G dominant sonority by altering the 5th in the Ch2 LH voicing [F B Eb or D#] and adding a #9 in the RH [Bb or A#] high point pitch in Ch2. Evans implied voice leading for the passage occurs as follows:

Harmonic Label	DbM7/Eb		Bb7b9/Eb		Bb7b9sus/Eb		Dm9 b5		G7 #9#5	
Chord Tones	Eb Db F Ab C		Eb Bb D F Ab Cb		Eb Bb Eb F Ab Cb					
Implied Mode (pitches) /	7	Db	D	D	D	D	E		#5	
	6		Cb	C	C	C	C		3	
	5	Bb	Bb	Bb	Bb	Bb				
	4	Ab	Ab	Ab	Ab	Ab	b5	Bb	#9	
Chord Tones	3	Gb	G	G	G	G				
	2	F	F	F	F	F	F	3	F	7
	1	Eb	Eb	Eb	Eb	Eb	D	1	G	1
Implied Mode (label)	Eb:M-Mode II Dorian		Eb-Major / Harmonic Minor		Eb:M-Major I Ionian					
Change in Mode / Resolution Type	→→→→ M3b – three voices change pitch		→→→→ M1 – one pitch ascends		→→→→ M2a or R1 one pitch ascends		→→→→ R4 - three voices change pitch			

Table 61– Evans’ Implied Voice/Pitch Leading of Passage #5

4.5.2. Herbie Hancock's Piano Solo Performance:

Example 22 –Hancock 4-measure Passage#5: mm.1-4 (Modal-Tonal)

Hancock contrasts the harmonically simple realization of the previous passage with a much richer harmonic realization during this final passage. The Ch1 passage picks up at the end of the preceding trombone solo. During this passage, Hancock transitions from a full accompaniment chordal style to a more melodic style. Compared to the second chorus, Hancock's improvisatory style in Ch1 differs drastically. Although stylistically different, though, the implied harmony between the two choruses remains consistent.

In the first measure of both choruses, Hancock implies an Eb:M-Mode II through pitches [Eb F __ Ab Bb C Db]. Similar to Evans' realization with an omitted third scale degree [Gb or G], the [Gb] pitch carries over more prominently from the previous modal setting due to the sequential nature of the passage. In m. 2 Hancock changes modal

families and explicitly articulates what Evans hinted at, the octatonic mode: E:DIM-Mode I pitches [E F G Ab Bb B C# D]. Both the full accompaniment in Ch1 and the accompanied melodic pattern in Ch2 outline this collection of pitches. Hancock again realizes the harmonic progression through sequence in m. 2 in the Ch2 RH, this time through descending groups of four note descending figures. The uniquely voiced groups extracted from the octatonic scale sequence as follows:

E:DIM-Mode I → pitches [E F G Ab Bb B C# D] or [1 2 3 4 5 6 7 8]								
Pitch / Position in Scale		Movement through mode	Pitch / Position in Scale		Movement through mode	Pitch / Position in Scale		Movement through mode
Bb	5	---	G	3	(up 5)	E	1	(up 5)
G	3	down 2 ⁷²	E	1	down 2	C#	7	down 2
D	8	down 3	B	6	down 3			
B	6	down 2	G#	4	down 2	F	2	down 1

Table 62 – Relation to Scale of Sequential Figure in
Hancock's Improvisation in Passage#5 Ch2 m.2

If Hancock had played a[G#] instead of the [G] in the highlighted portion in Table 62, a fully consistent sequencing of octatonic pitches would have occurred, thus continuing the [down 2 – down 3 – down 2 – up 5] grouping.

As the sequential stepping begins to change at the end of m. 2, so does the implied mode that Hancock articulates in m. 3. In Ch1, Hancock passes through pitches [Eb E G Ab Cb] and in Ch2 pitches [Eb E G Ab C C#]. Neither of these pitch collections align with any typical pentatonic or Hexatonic scale. Instead, Hancock creates a more chromatically based variation of these scales. Portions of the Octatonic mode carry forward, but becomes aurally skewed through the inclusion of the [Eb] and [C] pitches.

⁷² The numbers here refer to steps taken in the scale.

The Hexatonic scale is also hinted at [Eb E G Ab Cb C], but again distorted by the omission of the [C] in Ch1 and the addition of the [C#] in Ch2. The following table accounts for the Octatonic and Hexatonic possibilities in m. 3:

Hancock's Implied Mode	Octatonic E:DIM-Mode I	Hancock's Implied Mode	Hexatonic Mode
		C#	---
C	B		
---	Bb	---	Cb
---	F	---	---
Eb	D		

Table 63 – Overlap of pitches in Hancock's implied mode with Octatonic and Hexatonic Possibilities

Another possibility exists: considering the sequential nature of the Ch2 RH, except for the final [Ab] in m. 3, an Eb:DIM-Mode I is implied, down a semi-tone from the previous measure. The four note grouping in descending intervals [m3-P4-m3] continues in slight variation. Only the pitches [Eb E __ G __ __ C C#] of the full Eb:DIM-Mode I [Eb E F# G A Bb C C#] are sounded. Also, there is a prominent [Ab] in the LH – although this could arguably be thought of as a prolongation from the [G#] the previous measure.

Before proposing a definitive mode for categorization purposes, the final measure will be considered. In Ch1 m. 4, the LH suggests a G7b13 through a 3-b13-7 voicing, thus avoiding any consideration for the Dm7b5 harmony. The Dm7b5 sonority is similarly omitted in Ch2. The lack of the tonally based “II” portion of the II-V-I figure in C minor, coupled with the augmented sonority [G B Eb] alluding to the G7 sonority,

suggests that Hancock has not moved out of the modal setting, or at least is making no attempts to articulate the tonal harmony. Both RH realizations also support this suggestion. In Ch1. m. 4, Hancock moves through a seemingly unrelated sequence based in ascending third dyads. Taken on their own they allude to a G:DIM-Mode I [G Ab Bb B (C) C# D (Eb) __ F]. This partial octatonic possibility is quickly discarded when the entire recorded performance is considered. Tenor saxophonist George Coleman ends his solo with a melodic alternation between pitches [Bb G]. Hancock picks up on this first in Ch1 m.2 with the triplet [Bb G Bb G Bb G]. In m.4, he develops this figure through motivic ascension [Bb G → B Ab → C# A# → D B → Eb C → F D]. The figure ascends in near octatonic intervals: half-whole-half-(half)-whole steps. Overall, the dialogue (or musical conversation) occurring between Coleman and Hancock during this measure outweighs the implied harmonic quality of the passage. Therefore, any harmony implied through this dialogue will be overshadowed by the improvisation during Ch2 m. 4.

In Ch2 m. 4, Hancock again chromatically infuses a pentatonic scale by passing through pitches [G Bb B Eb E]. Considered tonally, this collection nearly outlines a G7#9#5: if the [E] were raised to an [F] there would be less ambiguity in the pitches played. Considered through intervallic relationship, this collection represents an augmented sonority [G B Eb] coupled with a tritone dyad [E Bb]. Neither of these considerations present convincing results. Instead, by focusing on the commonality between m.3 and m.4 of the chromatically infused pentatonic scale, a voice leading connection between set classes begins to illuminate. The collection [Eb E G Ab Cb] in Ch1 m. 3 reduces to set class <0 1 4 5 9>. The collection [G Bb B Eb E] in Ch2 m. 4 reduces to set class <0 1 5 6 9>. Considered from this perspective, the collection of

pitch, each representing a distinct mode or scale, can be analyzed similarly to a change in mode occurring between a major scale mode (i.e. set class <0 1 3 5 6 8 10>) and an diminished/octatonic mode (i.e. set class <0 1 3 4 6 7 9 10>). Their respective voice leading can be viewed from either of the two perspectives as follows:

Pitch Perspective		Set Class Perspective	
Cb	B	9	9
Ab	Bb	5	6
G	G	4	5
E	E	1	1
Eb	Eb	0	0
→→→→ M1 – one pitch changes		→→→→ M3a – two pitches move in parallel	

Table 64 – Voice Leading Perspective for Hancock’s Improvisation in Passage#5 mm.3-4

Hancock’s harmonic realizations in mm. 3-4 of Passage#5 do not fit into any typical tonal or modal settings broached in this thesis. Since the pitch perspective from the above table results in the tightest/simplest voice leading, it will be used for the voice leading analysis. Refer to Table 65 on the following page for Hancock’s implied voice leading.

The complexity of Hancock’s realization of this passage and its difficulty in categorization via harmonic content and voice leading, alludes to the limitations of the analytical framework. Most of these limitations result from the number of available modes in Appendix D that passages can be reduced to. The available modes in Appendix D, pending the Major/Harmonic Minor used in Passage#5, accounted for all the modes encountered up until these final two measures. Expanding this list would greatly reduce the inherent limitations it poses on the framework.

Harmonic Label	DbM7/Eb		Bb7b9/Eb	Bb7b9sus/Eb	Dm7b5 G7b9
Chord Tones	Eb Db F Ab C		Eb Bb D F Ab Cb	Eb Bb Eb F Ab Cb	[D F Ab C] [G B D F Ab]
Implied Mode (pitches) / Chord Tones	8	---	D	Eb	Eb
	7	Db	C#	---	---
	6			Cb	C#
	5	Bb	Bb	---	---
	4	Ab	Ab	Ab	Ab
	3	Gb	G	G	G
	2	F	F	---	---
	1	Eb	E	E	E
Implied Mode (label)	Eb:M-Mode II Dorian		E:DIM-Mode I	Set class <0 1 4 5 9>	Set class <0 1 5 6 9>
Change in Mode / Resolution Type	→→→→ M2a – three pitches move, one voice splits		→→→→ M2a - one pitch moves, three voices conjoin	→→→→ M1 - one pitch ascends	

Table 65 – Hancock’s Implied Voice/Pitch Leading of Passage #5

4.5.3. Analytical Commentary – Passage#5

The subtle sophistication alluded to in the previous commentary aptly finds itself again in the modal portion of this passage, in particular in Hancock’s harmonically complex, yet delicate realization. Both Evans and Hancock begin the passage with an implied Dorian mode, as a sequential continuation of Passage#4, but in m. 2 their harmonic realizations diverge. Evans continues (in line with the Score3 *initially derived mode*) by projecting the Major/Harmonic Minor scale. In m. 3 he discounts the b9 [Cb] in the Score1 Bb7b9sus/Eb designator in lieu of a more consonant [C] which results in an implied Eb major scale. Evans contrasts this somewhat more simplistic harmonic modal

realization by extending the harmonic sonorities in the tonal portion of the passage. These extensions result in an R4 (3) voice leading-type that greatly impact the overall voice-leading sum: Evans voice-leading sum for the passage is 10:8, higher than all other sums in Score3 (refer to the table below).

		m.1	m.2	m.3	m.4
S C O R E 3	Initially Derived Voicing	Eb:M-Mode V	Eb:MHM	Eb:MHM	Dm7b5 G7b9
		M3b (2) (---) M2a/R1 (1) R1 (1) [6:4]			
	Variation 1	Eb:M-Mode II	Eb:MM-Mode I	Eb:MM-Mode I	Dm7b5 G7b9b13
		M1 (1) (---) M2b (0) R3 (2) [6:3]			
	Variation 2	Eb:M-Mode II	Eb:M-Mode I	Eb:M-Mode I	Dm7b5b9 G7b9
		M3a (2) (---) M2b (0) R2 (2) [7:4]			
	Variation 3	Eb:P5-Mode II	Eb:MM-ModeIII	Eb:MM-ModeIII	Dm7b5b9 G13#9
		M2a (2) (---) M2a (1) R4 (3) [8:6]			
Evans' Performance		Eb:M-Mode II	Eb-MHM	Eb:M-Major I	Dm9b5 G7#9#5
		[10:8] M3b (3) M1 (1) M2a/R1 (1) R4 (3)			
Hancock's Performance		Eb:M-Mode II	E:DIM-Mode I	Set class <0 1 4 5 9>	Set class <0 1 5 6 9>
		[5:5] M2a (3) M2a (1) M1 (1)			

Table 66 – Passage #5 Comparison of Score3 and Score2 Performances

During Hancock's harmonic divergence, a seemingly simpler voice leading occurs. The paradox of this seemingly simple voice leading, where only two pitches change from mm. 2-4, arises from the analytical complex deduction required for arriving at the implied modes. Had a fuller array of modes been available to choose from, this paradox may have been avoided. Hancock's 5:5 voice-leading sum is less than all the Score3 sums (6:4, 6:3, 7:4, and 8:6).

Some of these subtle harmonic complexities occur in the chromatic ascent of the root note from [Eb] to [E], some occur in the varying number of pitches touched on from mode to mode ($7 \rightarrow 8 \rightarrow 5$), and some from the use of less common modes and set-classes: i.e. Octatonic and set class <01459> and <01569>. These subtleties allow for the tonal II-V portion of the passage to be breezed over with little or no disruption to the aural anticipation (or expectation) of the m. 5 downbeat “I”. Recall the C minor tonal Passage#1 that follows. Instead of emphasizing the C minor tonality through a II-V-I figure, Hancock alludes to the tonality by embedding the [G] dominant into the modally-altered final-measure portion of the passage: Hancock plays a [G] on each of the beats in Ch2 m. 34. Furthermore, Hancock’s sequential continuation in lieu of the chord progression demonstrates the type of freer approach to improvisation central to the direction of jazz improvisation in the early 1960’s. In this performance though, these few measures are only one of a few glimpses into where Hancock seems to disregard the chord progression.

Conclusion

At the beginning of this journey I set out to peel back some of the harmonic and voice-leading layers in Herbie Hancock's *Dolphin Dance*. This discovery required that I look closely at the nature of analysis in jazz improvisation. The following types of questions fueled this discovery. How does one analyze a musical medium that is improvised? What constitutes a jazz score? What type of formal and harmonic structural elements impact the analytical approach? What literature is essential to this analysis? What stems from these questions and what drives this journey is the development of an analytical framework, the majority of which constitutes this thesis.

Concrete materials are necessary in any musical analysis, even when the medium is based in improvisation. For materials, the analyst needs an unwavering musical score or recording from which to work. In Part I, three necessary jazz scores emerge: the "Score1" lead sheet (derived and settled on from available lead sheets), the "Score2" transcription (notated from a singular improvised performance), and the "Score3" variations (conceived of as all possible Score2 versions of Score1). As a whole, each of these scores represent the concrete material necessary to the analysis⁷³. Each of these scores are integral to the development of the analytical framework.

Part I continues with a structural exploration of typical jazz repertoire, focusing on both formal structure and harmonic structure. In the discussion on formal structure, the focus turns to the 4-measure passage – the most suitable length for analysis in terms of phrase structure and contained chordal progression. Thus, the 4-measure passage

⁷³ It should be noted that although Score3 exists mostly in the abstract, its total sum of possibilities do exist theoretically and are therefore concrete and unwavering from that perspective.

becomes the central component of the analytical framework: 4-measure passages are extracted from *Dolphin Dance's* Score1 and Score2 for comparison. Score3 variations are constructed in 4-measures lengths based on the extracted Score1 passages.

In the discussion on harmonic structure, tonal and modal settings are focused on independently. Voice leading in the quintessential II-V-I tonal progression is examined in a number of passages taken from jazz standard repertoire. During this section a number of concepts relating to tonal voice leading are introduced: 1) the basic voice transfers that occur during chord resolutions (i.e. voice transfers: $3 \rightarrow 7$, $7 \rightarrow 3$, $5 \rightarrow 9$, $9 \rightarrow 13$); 2) harmonic extensions and chord tone alterations (i.e. #5, #9, b13, 11th); and 3) common substitutions and related chords (i.e. tritone substitution, third related chords). In the modal section, I track the subtle evolution of modality in jazz from its basic model (limited to one mode per passage) to a “dual” mode model (defined by its multiple modes per passage). By tracking this evolution, the chromatic embellishments that occur within a dual modal setting become highlighted. These chromaticisms, in turn, become the voice-leading connections that are ultimately tracked in the analytical framework.

In Part II, I turn to four jazz theory authors-educators for some formal backing on the blooming framework. These texts, not often referenced in jazz theory scholarship in lieu of more scholastic writings, detail many of the fundamentals in jazz harmony and chord voicings in both tonal and modal settings. From these authors' texts, I build an appendix (Appendix C) that encapsulates the basic tonal and modal harmonic realizations. From this foundation, I then establish (taking my lead from David Baker, in particular) a set of criteria that quantifies the specific voice leading that occurs within both tonal II-V-I resolutions and modal dual settings. These two sets of criteria, listed in

Appendix E, become another central component of the analytical framework. This criteria, able to categorize the type of voice leading occurring in any tonal or modal passage, inherently becomes a concrete tool that the analyst can use indiscriminately.

In Part III, I begin to use this tool in the analysis of five *Dolphin Dance* passages. In this section, I also begin to “put ink to” some of the abstract Score3 variations. Each passage is categorized according to the harmony implied by Score1. This initial harmonic version becomes the first entry (“*initially derived voicing*”) for Score3. Three subsequent Score3 variations are derived for each passage: reharmonizations via chordal extensions and substitutions are applied to each tonal passage, and mode substitutions are applied to each modal passage. The voice-leading criteria enabled the voice leading connections to be easily determined, referenced, and compared to each other.

For each passage, a succession of three to five voice leading categories resulted. Next, these strings of category types are reduced to a single unit (“voice-leading sum” - x:y), thus encapsulates the voice leading of the entire 4-measure passage. This unit is used in Part IV for general comparisons between the passages.

The analytical framework is ultimately tested in Part IV. A Bill Evans and Herbie Hancock performance is analyzed and compared to Score3. For each performance, five passages are extracted and reduced to their implied harmonic voice-leading connections. These implied connections are then reduced to their respective voice-leading categories and sums, which are finally compared to their respective Score3 categories and sums. The numeric comparisons highlight a few general stylistic trends for both Evans and Hancock: i.e. 1) both performers imply a more complex harmonic setting during the tonal passages than during the modal passages; 2) Hancock tends to stray more from the

Score 1 harmonic designators during the modal sections than during the tonal passages; and 3) Evans follows more closely the tonal-modal boundaries than Hancock. (Reference the analytical commentary section for each passage in Part IV for more detailed findings).

Arguably the greatest strength of the analytical framework is the ease in which voice-leading qualities of like passages can be compared. Any passage can be easily reduced to a few basic voices that connect in a finite number of ways (i.e. adhering to one of the voice-leading categories). These connections can then be further reduced to voice-leading sums, which are easy to reference and use in groupings, comparisons, and statistics.

Inherent in these reductions, paradoxically, are the limitations of the framework. In the first reduction (from score to implied harmony), it is not always clear which voices are most prominent: pertinent voices may be eliminated during this process. During the second reduction (from implied harmony to numeric type), the exact voices that transfer cannot always be garnered from the voice-leading type or sum: i.e. the same sum or category can represent two entirely different implied harmonic realizations.

Another possible limitation concerns the adherence to the 4-measure passage. From one perspective, voice-leading types could be analyzed down to the chord-to-chord or mode-to-mode level regardless of whether they encompasses one, two, four, or more measures. From a contrary perspective, this model does not address larger level voice leading that occurs at eight measures, sixteen measures, or complete lead sheet formal structures. For the purposes of this thesis, and for purposes of simplicity and congruent comparisons, all the examples were kept to four measures. The framework, I suspect, could easily be adapted to smaller or larger voice leading levels. The main impact would

be on the voice-leading sums: their accumulation would likely render the totals more vague, and as result, would make comparisons less meaningful.

. The following alterations (or improvements) to the analytical framework should be considered prior to its future application: 1) For parallel voice-leading categories (R2 for tonal, and M2a and M3a for modal) a distinction between ascending and descending resolutions should be made; 2) The tonal and modal voice-leading categories are not congruent (tonal: four categories with sum values ranging from 1-4, modal: five categories with sum values ranging from 1-3) – this impacts any comparisons made between tonal and modal passages based on voice leading sums; and 3) Tonal contrary motion voice leading categories R3 (2 voices move in contrary motion) and R4 (3 or more voices move in contrary motion) could be merged, where R4 becomes a subcategory of R3 (e.g. R3a and R3b) – this would make the tonal and modal categories more congruent.

Other factors to consider: Should more or less chord tones be used in the voice leading analysis (i.e. more or less than four chord tones plus the bass)? Should the music (i.e. Score1 or Score2) itself be the governing factor in determining the number of chord tones to be used in the voice-leading analysis or should there be a consistent number of voices used regardless of what the music implies? Should more or less variations be derived for Score3 beyond the *initially derived voicing* and three variations presented in Part III? Should any variations be derived at all (i.e. considering that part of the reason for the variations being derived in this paper was to demonstrate the voice leading category types)? Should every analyzed performance (i.e. the *surface structure*) be added

to a growing body of Score3 variations (i.e. *shallow structure*), thus being used in future comparisons to other performances?

These reflections (i.e. considerations of possible alterations and other factors) reiterate that this conclusion is not a final destination, rather, it is a resting point. The journey taken thus far has covered much analytical ground. Many layers have been peeled back on the voice leading and harmonic structures in Herbie Hancock's *Dolphin Dance*, thus revealing an intricately woven composition tied together by many intertwining tonal and modal threads. Other peeled back layers have exposed some of the harmonic and voice leading threads that pianists Bill Evans and Herbie Hancock have sewn into *Dolphin Dance's* fabric. The rest of the layers (i.e. other musicians' improvisations, rhythm interpretation, interaction among the musicians, etc. *ad infinitum*) lay in waiting for discovery as destinations in the next journey.

Appendix A1 – Fakebook Versions of *Dolphin Dance*

a) Combined Fakebook chart for all four versions

Dolphin Dance

1) Ed Byrne - www.freejazzinstitute.com

2) Aebersold Play-Along Vol.11

3) The New Real Book Vol.3

4) The Real Book (5th - 6th Ed) and

Artist Transcription Series: The Herbie Hancock Collection

(a dash refers to no labelling in the lead sheet)

by Herbie Hancock

1) EbM9	Bbm11	EBM9	-	Dm11b5	G7#9	Cm11	A ^b 13(no5)
2) Eb	Bbm	EB	-	Dm7b5	G7#9	Cm	A ^b 7
3) EbM7	D ^b M7/E ^b	EBM7	-	Dm7b5	G7	Cm7	A ^b M9(#11)
4) EbM7	Bbm7	EBM7	-	Dm7b5	G7	Cm7	A ^b 7

Intro1 Intro2 Intro3 Intro4 5 6

Cm11	A m7	D7#9	GM9	A ^b m11	-	Fm9	B ^b 9/F	-	Cm11
Cm	A m	D7	G	A ^b m7	-	Fm	F m/B ^b	-	Cm
Cm7	A m7	D7	GM7	A ^b m7	-	Fm11	B ^b 7	-	Cm7
Cm7	A m7	D7	GM7	A ^b m7	D ^b 7	Fm7	B ^b 7	-	Cm7

7 8 9 10 11 12 13

-	A m11	D7#9	GM9	G13sus	FM7/G	GM7#9
-	A m	D7	G	Dm/G	G7#11	G7b9 Cm+7/G
-	A m11	D13	GM7	G13sus	A/G	EBM7b5/G -
C m7/B ^b	A m7	D7	GM7	G7sus	A/G	G7sus -

14 15 16 17 18 19 20

F13sus	B/F	F13sus	Em7	A7	F/E ^b	A m11	B/D
C m/F	D/F	C m/F	Em	A7	E ^b 7 7(no5)	A m	D7 7(no5)
F13sus	F13b9	F13sus	Em9	A13	E ^b 9(#11)	A m7	D13
F7sus	G/F	F7sus	Em7	A7	E ^b 7	A m7	D7

21 22 23 24 25 26

Bm11	E7#9	Dm11	C [#] m11	F [#] 13(no5)	DM7/E	CM7/E	DM7/E	CM7/E
B m	E7	Dm	D ^b m	G ^b 7	B m/E	A m/E	B m/E	A m/E
Bm7	E13	Dm7	C [#] m7(11)	F [#] 13	DM7/E	CM7/E	DM7/E	CM7/E
Bm7	E7	Dm7	C [#] m7	F [#] 7	B m7	A m7/B	B m7	A m7/B

27 28 29 30 31 32 33 34

D ^b M7/E ^b	B ^b 7/E ^b	Fm9/E ^b	Fm7b5/E ^b	-
B ^b m/E ^b	EBM7b5	A ^b M7#5/E ^b	G7#9	-
D ^b M7/E ^b	B ^b 13(b9)/E ^b	C7(#9)/E ^b	G7#9#5	-
B ^b m7	B ^b 7b9	B ^b 7sus(b9)	Dm7b5	G7b9

1 2 3 4

(Appendix A1-pg2)

b) Ed Byrne at www.freejazzinstitute.com

RHYTHM 12/08 **DOLPHIN DANCE** H. HANCOCK

Swing

Chords: Eb9, Bb9, Eb9, Dm9 G7+9

Chords: Cm7, Ab13(w/5), Cm, Am7 D7+9

Chords: Gm9, Ab9, Fm9, Bb9

Chords: Cm, Am, D7+9

Chords: Gm9, Gb9(w/5), Gb9(w/5), G7+9

Chords: F13(w/5), Bb13(w/5), F13(w/5), Em7 A7

Chords: F/E(w/5), Am, B/D(w/5), Bm

Chords: E7+9, Dm, Cm, Fm13(w/5)

REPEAT ON FINE ONLY

BASS

VAMP

Chords: Dm7/E, Bb9, on Fm9, Fm9

Chords: Dm7/E, Bb9, on Fm9, Fm9

Chords: Dm7/E, Bb9, on Fm9, Fm9

Chords: Dm7/E, Bb9, on Fm9, Fm9

TO GO OUT, WAIT UNTIL LAST SOLDIST GETS TO \$. ENTER THERE & TAKE REPEAT TO 4

W/ VAMP & FINE.

(Appendix A1-pg3)

c) Herbie Hancock Vol. 11: Jamey Aebersold Play-Along Series

7. Dolphin Dance By Herbie Hancock

PLAY 4 CHORUSES (♩ = 124)

The musical score for "Dolphin Dance" is written for a single melodic line in a key of one flat (B-flat major or D minor). It consists of 8 staves of music. The tempo is marked as 124 beats per minute (♩ = 124). The score includes various chords and melodic lines. The chords are: Fb, Bb, Eb, Eb, G7+9, C-, Ab7, C-, A-, Eb, G, Ab-, F-, Fb, Eb, C-, A-, G7, G, G7+9, G7b9 (C-A), G7, A, A, E-, A7, Eb7, Eb7, Fb, A-, B-, F-, F-, Fb7, Eb7, Bb-, Fb, AbΔ+5, EbΔ+5, and G7+9. The score ends with a double bar line and a key signature change to one sharp (F#).

SOLOS ON NEXT PAGE

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(Appendix A1-pg4)

d) The New Real Book Vol.3

Dolphin Dance Herbie Hancock

Med. Swing, in 2
♩ = 118

(trp. w/ ten. 8va b.)

A $E^b_{MA}{}^7$ $D^b_{MA}{}^7$ $E^b_{MA}{}^7$ $D_{MI}{}^{7(b5)}G^7$

$C_{MI}{}^7$ $A^b_{MI}{}^9(11)$ $C_{MI}{}^7$ $A_{MI}{}^7 D^7$

$G_{MA}{}^7$ $A^b_{MI}{}^7$ $F_{MI}{}^{11}$

$C_{MI}{}^7$ $A_{MI}{}^{11}$ D^{13}

B1 $G_{MA}{}^7$ G^{13}_{SUS} A_G $E^b_{MA}{}^{7(b5)}G$

F^{13}_{SUS} $F^{13(b9)}$ F^{13}_{SUS} $E_{MI}{}^9 A^{13}$

$E^b_{MI}{}^9(11)$ $A_{MI}{}^7 D^{13}$ $B_{MI}{}^7$ $E^{13} D_{MI}{}^7$

$C^{\#}_{MI}{}^{7(11)}$ $F^{\#13}$ $D_{MA}{}^7 E$ $C_{MA}{}^7 E$ $D_{MA}{}^7 E$ $C_{MA}{}^7 E \oplus$

B2 $D^b_{MA}{}^7$ E^b $B^b_{MI}{}^{13(b9)}$ E^b $C^{7(11)} E^b$ $G^{7(11)} E^b$

last x: $D_{MA}{}^7 E$ (pn. fill) $C_{MA}{}^7 E$ $D_{MA}{}^7 E$

Solo on AB.
After solos, D.S. al Coda

rit.

Comp figure for bars 1-7 of **B**: $\uparrow \uparrow \downarrow \downarrow$ (etc.)

After first solo, each solo (and the out head) begins at B2.
Bass walks in 4 for solos (mostly).

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(Appendix A1-pg5)

e) The Real Book Vol. 1 and Artist Transcriptions Piano: The Herbie Hancock Collection (same versions)

DOLPHIN DANCE — HERBIE HANCOCK

(MED. JAZZ) 12/2

Chords and notation across the staves:

- Staff 1: Ebmaj7, Bb-7, Ebmaj7, D-7b5 G7
- Staff 2: C-7, Ab7, C-7, A-7, D7
- Staff 3: Gmaj7, Ab-7, Db7, F-7, Bb7
- Staff 4: C-7, C-7/Bb, A-7, D7
- Staff 5: Gmaj7, G7sus4, A/G, G7sus4
- Staff 6: F7sus4, G/F, F7sus4, E-7, A7
- Staff 7: Eb7, A-7, D7, B-7, E7, D-7
- Staff 8: C#-7, F#7, B-7, A-7/B, 2
- Staff 9: Bb-7, Bb7(b9), Bb7sus4(b9), D-7b5, G7b9

Appendix A2

Dolphin Dance - Derived Score1

by Herbie Hancock

EbM7 Intro1 Bbm9 Intro2 EbM7 Intro3 Dm7b5 Intro4 G7
 Cm7 5 AbM9#11 6 Cm7 7 Am11 8 D7
 GM7 9 Abm11 10 Db7 Fm11 11 Bb7 12
 Cm7 13 Cm7/Bb 14 Am11 15 D7 16
 GM7 17 G9sus 18 A/G 19 G9sus 20
 F7sus 21 G/F 22 F7sus 23 Em11 24 A7
 Eb7#11 25 Am9 26 D13 27 Bm7 28 E7 28 Dm7 29 C#m11 29 F#13 30
 DM7/E 31 CM7/E 32 DM7/E 33 CM7/E 34
 DbM7/Eb 1 Bb7b9/Eb 2 Bb7susb9/Eb 3 Dm7b5 4 G7b9

Appendix B – List of Referenced Fakebook Charts

- 1) Charlie Parker's *Blues for Alice* – The Real Book Vol. 1 (6th ed.) - pg. 55
- 2) John Coltrane's *Blue Trane* – The Real Book Vol. 1 (6th ed.) - pg. 54
- 3) Herbie Hancock's *Maiden Voyage* – The Real Book Vol. 1 (6th ed.) - pg. 261
- 4) Morgan Lewis' *How High the Moon* – The Real Book Vol. 1 (6th ed.) - pg. 180
- 5) John Coltrane's *Moment's Notice* – The Real Book Vol. 1 (6th ed.) - pg. 280
- 6) Charlie Parker's *Ornithology* - – The Real Book Vol. 1 (6th ed.) - pg. 317
- 7) Sonny Rollins' *Oleo* – The Real Book Vol. 1 (6th ed.) - pg. 309
- 8) Sonny Stitt's *The Eternal Triangle* – The Real Book Vol. 3 – pg. 79
- 9) George Gershwin's *I've Got Rhythm* – Jazz LTD - pg. 158
- 10) John Coltrane's *Giant Steps* – The Real Book Vol. 1 (6th ed.) - pg. 157
- 11) John Coltrane's *Impressions* – The Real Book Vol. 1 (6th ed.) - pg. 205
- 12) Miles Davis' *So What* – The Real Book Vol. 1 (6th ed.) - pg. 364-5
- 13) Herbie Hancock's *One Finger Snap* – The Real Book Vol. 1 (6th ed.) - pg. 313
- 14) Herbie Hancock's *Speak Like a Child* – The Real Book Vol. 2 - pg. 336

Appendix C – Jazz Treatise “Harmonic Realizations”

Jerry Coker - *Jazz Keyboard*

(Tonal)

1) Basic voicing
LH: 1-7, RH: 3-5

2a) Basic Voicing Alternating
[LH 1-7 RH 3-5]
[LH 1-3 RH 7-9]

2b) Reverse Alternating
of 2a

3) Alterations on [LH 1-7 RH 3-5] voicing

Dm7 G7 CM7 FM7 Dm7 G9 CM7 FM9 Dm9 G7 CM9 FM7 CM7 C7 Cm7

C°7 C° Cm#7 CM7#11 CM7#5 C7#5 C7#11 C13

4) Extensions to 2a Alternating

a) LH 1-7, RH 3-5-9

b) LH 1-3, RH 7-9-13

5a) Rootless voicings (Major)
alternating [3-5-7-9] - [7-9-3-13]

Dm7 G9 CM7 FM9 Dm7 G9 CM7 FM9 Dm9 G13 CM7 C6/9 Dm9 G13 CM9 C9/6

5b) Rootless voicings (Minor)

alternating [3-5-7-9] - [7-9-3-13]

Dm9b5 Dm7b5 G7#9#5 CmM9 Cm6 Dm9b5 Dm7b5 G7#9#5 CmM9 Cm6

(Modal)

6a) Dominant Seventh
w/ suspended 4th

6b) bVII triad built
on Root pedal

6c) Quartal Voicings
(for modal passages)

6d) "So What"
Voicing

C7sus4 Bb/C Bb/C Dm7 (P4 x4) (x4 P4) Dm7

(Appendix C – pg2)

Dan Haerle - *Jazz/Rock Voicings for the Contemporary Keyboard Player and Jazz Improvisation for Keyboard Players*
(Tonal)

1a) Four Note Voicings built on the 3rd

1b) Four Note Voicings built on the 7th

Dm9 G9 CM9 Dm9 G9 CM9

1c) 2-5-1 progressions alternating four note voicings

Dm9 G13 CM9 Dm9 G9 CM9 Dm9 G13 C6/9 Dm6 G9 CM9 Dm6 G13 C6/9 Dm6 G13 CM9 Dm9 G9 CM7 Dm9 G13 CM7

2a) Altered dominant seventh voicings built on the 3rd

2b) Altered dominant seventh voicings built on the 7th

G7b9 G7#9 G7b9b5 G7b9#5 G7#9b5 G7#9#5 G9#5 G13#11 G7#9 G13b9 G7#9b5 G7#9#5

2c) 2-5-1 progressions w/ altered dominant seventh voicings
(2 inversions - one in each staff, w/ voicings built on 3rd and 7th)

Dm9 G13b9 C6/9 Dm9 G7#9#5 CM9 Dm7b5b9 G7b9#5 Cm6/9 Dm7b5b9 G7b9b5 Cm9

3) Tritone Substitutions

A B C D E

C7#9#5 G#13 C7b9b5 Gb C7b9#5 Gb9 C713b9 Gb7#9 C7b9 Gb7b9

(Modal)

4) Modal Voicings - moving in step motion through a given mode

5) Dominant Seventh w/ suspended 4th

D dorian C9sus C7sus C13sus C9sus

(Appendix C – pg3)

Mark Levine - *The Jazz Piano Book* and *The Jazz Theory Book*

(Tonal)

1) Three note voicings 2a) Altered notes in voicings

This section shows two musical examples. The first, '1) Three note voicings', displays two measures of piano triads in the right hand over a simple bass line. The second, '2a) Altered notes in voicings', shows two measures of triads with altered notes (sharps and flats) in the right hand, with specific chord labels $D^{\#}$, $G7b13$, and $G7b9$ provided.

2b) Altered 2-5 voicing

This section shows a single musical example for '2b) Altered 2-5 voicing'. It consists of two measures of piano triads in the right hand, with specific chord labels $G7b13$, $G7b9$, $G7\#11$, $G7alt$, $G7\#11$, $Dm7b5$, $G7alt$, $D^{\#}$, $G7alt$, $D^{\#}$, and $G7alt$ provided.

3) Upper Structures

This section shows a single musical example for '3) Upper Structures'. It consists of two measures of piano triads in the right hand, with specific chord labels $C7\#11$, $C7alt$, $C7b9$, $C7b9\#11$, $C7\#9$, $C7b9\#11$, $C7\#9$, $C7b9b13$, and $C7\#9\#11$ provided.

4) Voicings 5) Block Chords
a) Four-way close major 6th

This section shows two musical examples. The first, '4) Voicings', displays two measures of piano triads in the right hand, with specific chord labels $Dm7$, $G7b9$, $C6/9$, $Dm7$, $G7alt$, and $CM7b9/9$ provided. The second, '5) Block Chords a) Four-way close major 6th', shows two measures of block chords in the right hand.

b) Four-way close minor 6th c) Four-way close minor 7th d) Four-way close dominant 7th

This section shows three musical examples for four-way close voicings. Each example (b, c, and d) consists of two measures of piano triads in the right hand, with specific chord labels $Dm7$, $G7b9$, $C6/9$, $Dm7$, $G7alt$, and $CM7b9/9$ provided.

(Modal)

6) Sus chords 7) Fourth Chords
C Ionian, D Dorian, etc.

This section shows two musical examples. The first, '6) Sus chords', displays two measures of piano triads in the right hand, with specific chord labels $Gsus$ and F/G provided. The second, '7) Fourth Chords C Ionian, D Dorian, etc.', shows two measures of piano triads in the right hand, with specific chord labels $C6/9$, $G7$, $Dm6/9$, $Gsus$, $F6/9$, $G7$, $Gsus$, and $FM\#4$ provided.

(Appendix C – pg4)

David Baker - *Jazz Improvisation and* (Tonal) *Modern Concepts in Jazz Improvisation*

1) Chord Substitutions - II-V's related through roots in the same diminished 7th chord

II-V in C major related to the following: (IV) bVII (tritone) (II-V of relative minor - A minor)

Dm7 G7 Fm7 Bb7 Abm7 D#7 Bm7 E7

2) "Coltrane Changes" - Chord Substitution for 4 (or 2) measure II-V-I turnaround

Dm (II) G7 (V) C (I)

Dm7 Eb7 A7 B7 E G7 C

3a) 2-5-1 Regular Resolution 3b) 2-5-1 Parallel Resolution

Dm7 G9 CM7 Dm7 G7b9 CM7

3c) 2-5-1 Divergent Resolution 3d) 2-5-1 [#9#5] Resolution

Dm7 G7b9b5 CM7 Dm9 G7#9#5 CM9

(Modal)

4a) Bitonal Modal Realizations

AbM7#5/Bb F ascending melodic minor GbM7#5/Bb Eb ascending melodic minor C/Ab F ascending melodic minor E/G G diminished

4b) Constructing Bitonal Scales

B/C C/E C/A F/G/A

Appendix D – Modal Characteristics of 5 Scale Families

Scale	Mode	Pitches (pitches based on Mode I – C root)	Pitches (pitches related to major scale)	Chord Type
Major (M)	Mode I – Ionian	C D E F G A B	1 2 3 4 5 6 7	M7
	Mode II – Dorian	D E F G A B C	1 2 b3 4 5 6 b7	m7, m6
	Mode III – Phrygian	E F G A B C D	1 b2 b3 4 5 b6 b7	m7, susb9
	Mode IV – Lydian	F G A B C D E	1 2 3 #4 5 6 7	M7#4
	Mode V – Dominant	G A B C D E F	1 2 3 4 5 6 b7	7, sus7
	Mode VI – Aeolian	A B C D E F G	1 2 b3 4 5 b6 b7	m7, m7b6
	Mode VII – Locrian	B C D E F G A	1 b2 b3 4 b5 b6 b7	m7b5
Melodic Minor (MM)	Mode I – minor-major	C D Eb F G A B	1 2 b3 4 5 6 7	mM7
	Mode II – minor-susb9	D Eb F G A B C	1 b9 b3 4 5 6 b7	m7, susb9
	Mode III – Lydian Augmented	Eb F G A B C D	1 2 3 #4 #5 6 7	M7#5
	Mode IV – Lydian Dominant	F G A B C D Eb	1 2 3 #11 5 6 b7	7#11
	Mode V – dominant-b6	G A B C D Eb F	1 2 3 4 5 b6 b7	7, b13
	Mode VI – Half-Dim.(or) Locrian#2	A B C D Eb F G	1 2 b3 4 b5 b6 b7	m7b5
	Mode VII – Altered (or) Diminished Whole-Tone	B C D Eb F G A	1 b9 #9 3 b5 #5 b7	7alt
Pentatonic / Blues (P5)	Mode I – Major pentatonic	C D E G A	1 2 3 5 6	M7, M6
	Mode II	D E G A B	1 2 4 5 6	sus
	Mode III	E G A C D	1 b3 4 b6 b7	m7, mb6
	Mode VI	G A C D E	1 2 4 5 6	sus, M6
	Mode V – Minor Pentatonic	A C D E G	1 b3 4 5 b7	m7
	Mode “VI” – Blues Scale	A C D D# E G	1 b3 4 #4 5 b7	m7
Diminished (DIM)	Mode I – Half- step/Whole-step	C Db Eb E F# G A Bb	1 b9 #9 3 #11 5 6 b7	7b9,7#9 7#11
	Mode II – Whole-step/ Half-step	C D Eb F F# G# A B	1 2 b3 4 #11 #5 6 7	o, o7, mM7
Whole-Tone (WT)	Mode I – Whole-Tone	C D E F# G# Bb	1 2 3 #11 #5 b7	7#5, 7#11

Appendix E – Tonal and Modal Analytical Categories

Tonal Categories – Dunn Resolution Types:

- 1) Regular Resolution (R1) – **one voice** changes pitch ($7^{\text{th}} \rightarrow 3^{\text{rd}}$) and all other voices hold their pitch.
- 2) Parallel Resolution (R2) – **two or more voices** move in similar motion, either descending (most common) or ascending.
- 3) Divergent Resolution (R3) – **two voices** move in contrary motion.
- 4) Multiple Voice Resolution (R4) – **three or more voices** move in contrasting motion (e.g. 2 ascend–1 descends, 1 ascends–2 descend, etc.) and may or may not split or conjoin.

Modal Categories:

- 1) Closely related modes (M1): a change in mode occurs where only **one pitch** changes. Successive modes can be from like or different family types, but must contain the **same number of pitches**.
- 2) Modes containing **different number of pitches** (M2a, M2b): inherent in this category is that a change in mode family must occur.
 - a) The pitch content of successive modes **partially overlap**, where select pitches conjoin or split as the mode changes.
 - b) The pitch content of successive modes **fully overlap**, where select pitches are added or omitted as the mode changes.
- 3) More distantly related modes (M3a, M3b): a change in mode occurs where **two or more pitches** change. Successive modes can be from like or different family types, but must contain the **same number of pitches**.
 - a) The voice leading occurs in parallel motion.
 - b) The voice leading occurs in contrary motion – in any combination of ascending or descending motion.

Voice Leading Sum: The reduction of the voice leading connections of a particular passage to a numeric [x:y] designator - where [x] represents the sum of resolution types (i.e. R3=3, M2a=2) and [y] represents the sum of the number of voices that change pitch during successive implied tonal or modal harmonies.

Bibliography

- Aebersold, Jamey. *Jazz Piano Voicings: Transcribed Piano Comping from Vol.1*. Jamey Aebersold Jazz, 1980.
- Bailey Derek. "Improvisation: Its Nature and Practice in Music." Da Capo Press, 1992.
- Baker, David. *Jazz Improvisation: A Comprehensive Method for All Musicians*. Alfred Publishing, 1988.
- _____. *Modern Concepts in Jazz Improvisation: A Comprehensive Method for All Musicians*. Alfred Publishing, 1990.
- Berliner, Paul F. *Thinking in Jazz: The Infinite Art of Improvisation*. Chicago: University of Chicago Press, 1994.
- Block, Steven. "Organized sound: Pitch Class Relations in the Music of Ornette Coleman." *Annual Review Of Jazz Studies* 6 (1993): 229-52.
- _____. "Pitch-Class Transformation in Free Jazz." *Music Theory Spectrum* 12.2 (1990): 181-202.
- Burns, Ken. "Jazz" (Ten Part Documentary). PBS. 2000.
- Burns, Lori. "Analytical Methodologies for Rock Music." In *Expressions in Pop-Rock Music* (2nd Edition). edited by Walter Everett, 63-92. New York: Routledge, 2008.
- Cadwallader, Allen, and David Gagne. *Analysis of Tonal Music: A Schenkerian Approach*. (2nd ed.). New York: Oxford University Press, 2007.
- Coker, Jerry. *Jazz Keyboard: Jerry Coker's Jazz Keyboard*. CPP/Belwin Inc, 1991.
- Covach, John. "We Won't Get Fooled Again: Rock Music and Musical Analysis." In *Theory Only* 13 (September 1997): 119-34.
- Demsey, David. "Chromatic Third Relations in the Music of John Coltrane." *Annual Review of Jazz Studies* 5 (1991): 145-180.
- Everett, Walter. "Making Sense of Rock's Tonal Systems." *Music Theory Online* 10.4, 2004.
- _____. "Swallowed by a Song." In *Understanding Rock: Essays in Musical Analysis*, Edited by Covach, John and Boone, 113-153. New York: Oxford University Press, 1997.
- _____. "Pitch Down the Middle," In *Expressions in Pop-Rock Music*. edited by Walter Everett, 111-174. Routledge, 2008.
- Gridley, Marc C. *Jazz Styles: History and Analysis*. N.J: Prentice Hall, 2003.
- Haywood, Mark S. "Order and Chaos in Bird and Trane." *Annual Review of Jazz Studies* 9 (1997-98): 133-143. .
- _____. "The Harmonic Role of Melody in Vertical and Horizontal Jazz." *Annual Review of Jazz Studies* 5 (1991): 109-120.
- Hearle, Dan. *Jazz Improvisation for Keyboard Players*. 3 Vols. Warner Bros. Publication, 1978.
- _____. *Jazz/Rock Voicings for the Contemporary Keyboard Player*. Alfred Publishing, 1974.
- _____. *Jazz Piano Voicings: Transcribed Piano Comping from Vol. 41*. Jamey Aebersold Jazz, 1994.
- Hodson, Robert. *Interaction, Improvisation, and interplay in Jazz*. New York: Routledge, 2007.

- Larson, Steve. "Dave McKenna's Performance of *Have You Met Miss Jones?*" *American Music*. 11.3 (1993): 283-315.
- _____. "The Art of Charlie Parker's Rhetoric." *Annual Review of Jazz Studies* 8 (1998): 141-66.
- _____. "Schenkerian Analysis of Modern Jazz: questions about method," *Music Theory Spectrum* 20.2 (Fall 1998): 209-41.
- _____. "Schenkerian Analysis of Modern Jazz." Ph.D diss. University of Michigan, 1987.
- Levine, Mark. *The Jazz Piano Book*. Petaluma: Sher Music Co, 1989.
- _____. *The Jazz Theory Book*. Petaluma: Sher Music Co, 1995.
- Lyons, Len. *The Great Jazz Pianists*. New York: Da Capo, 1983.
- Martin, Henry. *Charlie Parker and Thematic Improvisation*. Maryland: The Scarecrow Press, Inc., 1996.
- _____. "Jazz Harmony." Ph.D dissertation, Princeton University, 1980.
- _____. "Jazz Harmony: A Syntactic Background." *Annual Review of Jazz Studies* 4 (1988): 9-30.
- Meehan, Norman. "After the Melody: Paul Bley and Jazz Piano After Ornette Coleman." *Annual Review of Jazz Studies* 12 (2002): 85-116.
- Morgan, David. "Superimposition in the Improvisations of Herbie Hancock." *Annual Review of Jazz Studies* 11 (2000-01): 69-90.
- Neidhofer, Christoph. "A Theory of Harmony and Voice Leading for the Music of Olivier Messiaen." *Music Theory Spectrum* 27.1 (Spring 2005): 1-34.
- Perlman, Alan M. and Daniel Greenblatt. "Miles Davis Meets Noam Chomsky: Some Observations on Jazz Improvisation and Language Structure," In *The Sign in Music and Literature*. Ed. Wendy Steiner, 169-183. University of Texas Press, 1981.
- Perry, Justin. C. "A comparative analysis of selected piano solos by Red Garland, Bill Evans, Wynton Kelly and Herbie Hancock from their recordings with the Miles Davis groups, 1955-1968." Ph.D dissertation, University of Miami, 2006.
- Pond, Steven F. *Head Hunters: The Making of Jazz's First Platinum Album*. Ann Arbor: University of Michigan Press, 2005.
- _____. "Herbie Hancock's Head Hunters: Troubling the Waters of Jazz." Ph.D Dissertation, University of California, Berkeley. Spring 2000.
- Reeves, Scott D. "Gil Evans: The Art of Musical Transformation." *Annual Review of Jazz Studies* 12 (2002): 1-40.
- Rinzler, Paul. "McCoy Tyner: Style and Syntax." *Annual Review Of Jazz Studies* 2 (1983): 109-49.
- _____. "The Quartal and Pentatonic Harmony of McCoy Tyner." *Annual Review Of Jazz Studies* 10 (1999): 35-87.
- Robinson, Thomas. "Core Components in Jimmy Webb's 'Didn't We'." Paper presented at Society for Music Theory Annual Meeting, Nashville, November 7, 2008.
- Russell, George. *Lydian Chromatic Concept of Tonal Organization. Volume One: The art and science of tonal gravity*. New York: Conept Publishing, 2001.
- Salzman, Eric and Michael Sahl. *Making Changes: A Practical Guide to Vernacular Harmony*. McGraw-Hill Book Company, 1977.

- Schoenberg, Arnold. *Theory of Harmony*. (translated by Roy E. Carter). Berkeley: University of California Press, 1978.
- Schuller, Gunther. *Early Jazz: Its Roots and Musical Development*. New York: Oxford University Press, 1968.
- . “Sonny Rollins and the Challenge of Thematic Improvisation,” In *Musings*, 86-97. New York. Oxford University Press, 1986.
- Straus, Joseph N. *Introduction to Post-Tonal Theory* (2nd Ed.). New Jersey: Prentice-Hall, 1990.
- Strunk, Steven. “Bebop Melodic Lines: Tonal Characteristics.” *Annual Review of Jazz Studies* 3 (1985): 97-120.
- . “Linear Intervallic Patterns in Jazz Repertory.” *Annual Review of Jazz Studies* 8 (1996): 63-111.
- Terefenko, D. “Keith Jarrett's Transformation of Standard Tunes.” Ph.D diss., University of Rochester, Eastman School of Music, 2004.
- . “Phrase Models and Prototypes of Forms in Standard Tunes.” Poster Session at the Society for Music Theory Annual Meeting, Nashville, November 7, 2008.
- Waters, Keith. “Blurring the Barline: Metric Displacement in Piano Solos of Herbie Hancock.” *Annual Review of Jazz Studies* 8 (1996): 19-37.
- . “Outside forces: “Autumn Leaves” in the 1960’s.” *Current Musicology* 71-73 (Spring 2001-02): 276-302.
- . “Modes, Scales, Functional Harmony, and Nonfunctional Harmony in the Compositions of Herbie Hancock.” *Journal of Music Theory* 49.2 (Fall 2005): 333-357.

Transcriptions, Fakebooks (limited reference information for select entries)

- Aebersold, Jamey. *Herbie Hancock Vol. 11: Jamey Aebersold Play-Along Series*. New Albany: Jamey Aebersold Jazz, 1977.
- Alternate harmonization of *Dolphin Dance* by Ed Byrne at www.freejazzinstitute.com <accessed 30 September 2008>.
- Artist Transcriptions Piano: The Herbie Hancock Collection*. Hal Leonard. Transcribed by Richard Tuttobene. ISBN 0-7935-8709-3.
- Dolphin Dance*: Piano solo by Bill Evans on *Secret Sessions (or The Complete Fantasy Recordings)*. Transcribed on www.freehandmusic.com <accessed 30 September 2008>.
- Jazz LTD*. [blue cover: no other information given]
- The New Real Book Vol. 3*. Ed. Chuck Sher. Petaluma: Sher Music Co., 1995.
- The Real Book Vol. 1* (5th ed.) [blue cover: no other information given]

Discography.

- Evans, Bill. *The Secret Sessions 1966-75 (or The Complete Fantasy Recording)*. Milestone 8MCD-4421-1. 1996.
- Hancock, Herbie. *Maiden Voyage*. Blue Note Records 84195. 1965